ACCESSORIES

American Phenolic Corp.
1830 So. 54th Ave.
Chicago 50, Ill.

American Radio Hardware Co., Inc.
152 McQuesten Parkway S.
Mt. Vernon, N. Y.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

L. S. Brach Mfg. Corp.
55 Dickerson St.
Newark 4, N. J.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Chase Brass & Copper Co.
Waterbury 91, Conn.

Cherry Rivet Co.
221 Winston St.
Los Angeles 13, Cal.

Cinch Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

Electronic Mechanics, Inc.
70 Clifton Blvd.
Clifton, N. J.

Fahnestock Electric Co.
46-44 11th St.
Long Island City 1, N.Y

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Isolantite, Inc.
343 Cortlandt St.
Belleville 9, N. J.

E. F. Johnson Co.
206 Second Ave., N.W.
Waseca, Minn.

Keystone Electronics Co.
50 Franklin St.
New York 13, N. Y.

Lapp Insulator Co., Inc.
31 Gilbert St.
LeRoy, N. Y.

Leotone Radio Co.
63 Dey St.
New York 7, N. Y.

Frank W. Morse Co.
301 Congress St.
Boston, Mass.

Mueller Electric Company
1583 East 31st St.
Cleveland 14, Ohio

Radex Corp.
53 W. Jackson Blvd.
Chicago 4, Ill.

Radio Essentials, Inc.
110 E. 3rd St.
Mt. Vernon, N. Y.

Walter L. Schott Co.
9306 Santa Monica Blvd.
Beverly Hills, Calif.

Zierick Mfg. Corp.
385 Gerard Ave.
Bronx, N. Y.

ADAPTERS

Adaptol Company
250 Utica Ave.
Brooklyn 13, N. Y.

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Phenolic Co.
1830 So. 54th Ave.
Chicago 50, Ill.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Dayton-Acme Company
930 York St.
Cincinnati, Ohio

Hugh H. Eby, Inc.
18 W. Chelton Ave.
Philadelphia 13, Pa.

Insuline Corp. of America
36-02 - 35th Ave.
Long Island City 1, N. Y.

J. F. D. Manufacturing Co.
4117 Ft. Hamilton Pkway
Brooklyn 19, N. Y.

Superior Adapter Co.
969 Rockaway Ave.
Brooklyn 12, N. Y.

AMPLIFIERS

Altec Lansing Corp.
1210 Taft Bldg.
Hollywood 28, Calif.

Amplifier Co. of America
396 Broadway
New York, N. Y.

Bell Sound Systems, Inc.
1183 Essex Ave.
Columbus 3, Ohio

David Bogen Co., Inc.
663 Broadway
New York 12, N. Y.

Browning Laboratories, Inc.
750 Main St.
Winchester, Mass.

Eastern Amplifier Corp.
794 E. 140th St.
New York 54, N. Y.

The Erwood Co.
223 W. Erie St.
Chicago 10, Ill.

Newcomb Audio Prod. Co.
2815 So. Hill St.
Los Angeles 7, Calif.

Operadio Mfg. Co.
St. Charles, Ill.

Radex Corp.
53 W. Jackson Blvd.
Chicago 4, Ill.

The Rauland Corp.
4245 No. Knox Ave.
Chicago 41, Ill.

Regal Amplifier Co.
20 West 20th St.
New York 11, N. Y.

Setchell-Carlson, Inc.
2233 University Ave.
St. Paul 4, Minn.

Mark Simpson Mfg. Co.
188 W. 4th St.
New York 14, N. Y.

Thordarson Electric Mfg. Co.
500 W. Huron St.
Chicago 10, Ill.

Webster Electric Co.
Clark & De Koven Ave.
Racine 1, Wisc.

Worner Electronic Devices
609 W. Lake St.
Chicago 6, Ill.

ANTENNAE & PARTS (AERIALS)

American Phenolic Corp.
1830 So. 54th Ave.
Chicago 50, Ill.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

L. S. Brach Mfg. Corp.
55 Dickerson St.
Newark 4, N. J.

Burton-Rogers Co.
857 Boylston St.
Boston 16, Mass.

Camburn Products Co.
490 Broome St.
New York 13, N. Y.

M. M. Fleron & Son, Inc.
113 No. Broad St.
Trenton, N. J.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Isolantite, Inc.
343 Cortlandt St.
Belleville 9, N. J.

Radiart Corp.
3571 West 62nd St.
Cleveland 2, Ohio

Scientific Industries
5320 Broadway
Chicago, Ill.

Snyder Mfg. Co.
22nd & Ontario Sts.
Philadelphia 40, Pa.

J.F.D. Mfg. Co.
4117 Ft. Hamilton Parkway
Brooklyn 19, N. Y.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Kaar Engineering Co.
619 Emerson St.
Palo Alto, Calif.

Lapp Insulator Co.
31 Gilbert St.
LeRoy, N. Y.

Locke Insulator Corp.
St. Charles & Cromwell Sts.
Baltimore, Md.

Philson Mfg. Co.
148 Chambers St.
New York 7, N. Y.

Premax Prod. Div. Chisholm-Ryder Co.
College & Highland Aves.
Niagara Falls, N. Y.

Radex Corp.
53 W. Jackson Blvd.
Chicago 4, Ill.

Sperling Products Co.
64 Grand St.
New York 13, N. Y.

Technical Appliance Corp.
516 W. 34th St.
New York 1, N. Y.

The Ward Products Corp.
1523 E. 45th St.
Cleveland 3, Ohio

BALLASTS *(See Tubes)*

BATTERIES, DRY

Acme Battery Corp.
59 Pearl St.
Brooklyn, N. Y.

Bond Electric Corp.
275 Winchester Ave.
New Haven 4, Conn.

Bright Star Battery Co.
200 Crooks Ave.
Clifton 1, N. J.

Burgess Battery Co.
Foot of Exchange St.
Freeport, Ill.

General Dry Batteries, Inc.
13000 Athens Ave.
Lakewood 7, Ohio

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

National Carbon Co., Inc.
30 East 42nd St.
New York 17, N. Y.

National Union Radio Corp.
15 Washington St.
Newark 2, N. J.

Ray-O-Vac Co.
2317 Winnebago St.
Madison 4, Wisc.

U. S. Electric Mfg. Corp.
222 West 14th St.
New York, N. Y.

BATTERY CHARGERS

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Electronic Laboratories, Inc.
122 W. New York St.
Indianapolis 4, Ind.

Heyer Products Co., Inc.
471 Cortland St.
Belleville, N. J.

Kato Engineering Co.
530 No. Front St.
Mankato, Min.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

McColpin-Christie Corp., Ltd.
4922 St. Figueroa St.
Los Angeles 37, Calif.

Ward Leonard Elect. Co.
53 W. Jackson Blvd.
Chicago 4, Ill.
Factory: Mt. Vernon, N. Y.

BINDING POSTS AND TERMINALS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Radio Hardware Co., Inc.
152 McQuesten Parkway So.
Mount Vernon, N. Y.

Bud Radio, Inc.
2118 E. 65th St.
Cleveland 3, Ohio

Canon Elect. Development Co.
3209 Humboldt St.
Los Angeles 31, Calif.

Cinch Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

Hugh H. Eby, Inc.
18 W. Chelton Ave.
Philadelphia, Pa.

Fahnestock Electric Co.
46-44 11th St.
Long Island City 1, N. Y.

A. W. Franklin Mfg. Corp.
175 Varick St.
New York 14, N. Y.

General Laminated Products, Inc.
2857 So. Halsted St.
Chicago 8, Ill.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Zierick Mfg. Corp.
385 Gerard Ave.
Bronx, N. Y.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Birnbach Radio Co.
145 Hudson St.
New York 13, N. Y.

Howard B. Jones Co.
2460 W. George St.
Chicago 11, Ill.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

Keystone Electronics Co.
50 Franklin St.
New York 13, N. Y.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

Micarta Fabricators, Inc.
5324 Ravenswood Ave.
Chicago 40, Ill.

National Fabricated Products
2650 Belden Ave.
Chicago 47, Ill.

Remler Company, Ltd.
2101 Bryant St.
San Francisco 10, Calif.

Waterbury Button Co.
835 So. Main St.
Waterbury, Conn.

CABINETS (METAL AND PLASTIC)

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Croname, Inc.
3701 No. Ravenswood
Chicago 13, Ill.

Insuline Corp of America
36-02 35th Ave.
Long Island City 1, N. Y.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Karp Metal Products Co.
129 30th St.
Brooklyn 32, N. Y.

Kurz-Kasch, Inc.
1421 So. Broadway
Dayton 1, Ohio

Par-Metal Products Corp.
32-62 49th St.
Long Island City 1, N. Y.

Teckna Company
223rd St. & Northern Blvd.
Bayside, L. I., N. Y.

CABLE ASSEMBLIES

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Electric Cable Co.
181 Appleton St.
Holyoke, Mass.

American Phenolic Corp.
1830 So. 54th St.
Chicago 50, Ill.

Miller Electric Co.
127 High St.
Pawtucket, R. I.

Royal Electric Co., Inc.
95 Grand Ave.
Pawtucket, R. I.

Belden Mfg. Co.
4647 W. Van Buren St.
Chicago 24, Ill.

Cords, Ltd., Inc.
126 Orchard St.
Newark 5, N. J.

J.F.D. Mfg. Co.
4117 Ft. Hamilton Parkway
Brooklyn 19, N. Y.

Rumsel Cord & Wire Co.
4727 Montrose Ave.
Chicago 41, Ill.

Walter L. Schott Co.
9306 Santa Monica Blvd.
Beverly Hills, Calif.

Whittaker Cable Corp.
No. Kansas City, Mo.

CAPACITORS, FIXED

Aerovox Corporation
740 Belleville Ave.
New Bedford 54, Mass.

Atlas Condenser Prod. Co.
548 Westchester Ave.
New York 55, N. Y.

American Condenser Co.
4410 Ravenswood Ave.
Chicago 40, Ill.

Electro-Motive Mfg. Co.
So. Park & John Sts.
Willimantic, Conn.

John E. Fast & Co.
3123 N. Pulaski Road
Chicago 41, Ill.

Girard-Hopkins
1000 40th Ave.
Oakland 1, Calif.

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CAPACITORS, FIXED (CONT.)

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

The Capacitron Company
549 No. Kedzie ve.
Chicago, Ill.

Centralab Div. of Globe Union, Inc.
900 E. Keefe Ave.
Miwaukee 1, Wisc.

Ceramic Reactance Corp.
Elm Street
Franklinville, N. Y.

Consolidated Wire & Assoc. Cos.
1635 So. Clinton St.
Chicago 16, Ill.

Continental Carbon, Inc.
13900 Lorraine Ave.
Cleveland 11, Ohio

Cornell-Dubilier Elect. Corp.
1605 E. Rodney French Blvd.
New Bedford, Mass.

Cosmic Radio Corp.
699 E. 135th St.
New York, N. Y.

Curtis Condenser Corp.
3809 W. 152nd St.
Cleveland 11, Ohio

Deutschmann, Tobe Corp.
Washington St.
Canton, Mass.

Dumont Electric Co.
34 Hubert St.
New York 13, N. Y.

Micamold Radio Corp.
1087 Flushing Ave.
Brooklyn 6, N. Y.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

The Potter Co.
1950 Sheridan Road
No. Chicago 1, Ill.

The Gudeman Co.
361 W. Superior St.
Chicago 10, Ill.

Edwin I. Guthman & Co., Inc.
15 So. Throop St.
Chicago 7, Ill.

Illinois Condenser Co.
1600 No. Howe St.
Chicago Ill.

Industrial & Commercial Electronics
P. O. Box 296
Belmont, Calif.

Industrial Condenser Corp.
3243-65 N. California Ave.
Chicago 18, Ill.

Jeffers Electronics
St. Marys, Pa.

Jennings Radio Mfg. Co.
1098 E. William St.
San Jose 12, Calif.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

The Magnavox Company
Fort Wayne 4, Ind.

P. R. Mallory & Co., Inc.
2039 E. Washington St.
Indianapolis 6, Ind.

Sangamo Electric Co.
1301 No. 11th St.
Springfield, Ill.

The F. W. Sickles Co.
165 Front St.
Chicopee, Mass.

Solar Mfg. Corp.
285 Madison Ave.
New York 17, N. Y.

Sprague Products Co.
Marshall St.
No. Adams, Mass.

CAPACITORS, VARIABLE (TUNING & TRIMMER)

American Steel Package Co.
Defiance, Ohio

Barker & Williamson
235 Fairfield Ave.
Upper Darby, Pa.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

The Allen D. Cardwell Mfg. Corp.
81 Prospect St.
Brooklyn 1, N. Y.

General Instrument Corp.
829 Newark Ave.
Elizabeth 3, N. J.

Hammarlund Mfg. Co., Inc.
460 West 34th St.
New York 1, N. Y.

E. F. Johnson Co.
206 2nd Ave. N.W.
Waseca, Minn.

Radio Condenser Co.
Camden, N. J.

Variable Condenser Corp.
63 Hope St.
Brooklyn, N. Y.

CHASSIS BASES

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Erie Can Company
816 W. Erie St.
Chicago 22, Ill.

The Huenefeld Co.
2701 Spring Grove Ave.
Cincinati 25, Ohio

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Karp Metal Prod. Co.
129 30th St.
Brooklyn 32, N. Y.

Oak Manufacturing Co.
1260 Clybourne Ave.
Chicago 25, Ill.

Par-Metal Products Corp.
32-62 49th St.
Long Island City 3, N. Y.

CHOKES *(See Coils and Transformers)*

CLIPS, BATTERY, TEST AND GRID CAP *(See Accessories)*

COILS

American Coil & Eng. Co.
1271 No. Hermitage Ave.
Chicago 22, Ill.

Automatic Mfg. Corp.
900 Passaic Ave.
E. Newark, N. J.

Barker & Williamson
235 Fairfield Ave.
Upper Darby, Pa.

Best Mfg. Co., Inc.
1200 Grove St.
Irvington 11, N. J.

Carron Mfg. Co.
415 So. Aberdeen St.
Chicago 7, Ill.

Ceramic Reactance orp.
Elm St.
Franklinville, N. Y.

Communication Parts
1101 No. Paulina St.
Chicago 22, Ill.

Communications Coil Co.
2841 No. Narragansett Ave.
Chicago, Ill.

Consolidated Wire & Assoc. Cos.
1635 So. Clinton St.
Chicago 16, Ill.

Coto-Coil Co., Inc.
65 Pavilion Ave.
Providence 5, R. I.

Dean W. Davis & Co., Inc.
1000 First St.
Kentland, Ind.

Anaconda Wire & Cable Co.
25 Broadway
New York 4, N. Y.

Edwin I. Guthman & Co., Inc.
15 So. Throop St.
Chicago 7, Ill.

Hammarlund Mfg. Co., Inc.
460 W. 34th St.
New York 1, N. Y.

Insuline Corp. of America
36-02 35th Ave.
Long Island City, N. Y.

Jeffers Electronics
St. Marys, Pa.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Magnetic Winding Co.
418 So. 16th St.
Easton, Pa.

Meissner Mfg. Div. Maguire Ind., Inc.
7th & Belmont
Mt. Carmel, Ill.

J. W. Miller Co.
5917 So. Main St.
Los Angeles 3, Calif.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

Radex Corporation
53 W. Jackson Blvd.
Chicago 4, Ill.

COILS (CONT.)

Dinion Coil Co., Inc.
North St.
Caledonia, N. Y.

DX Radio Prod. Co.
1200 No. Claremont St.
Chicago 22, Ill.

Electrical Windings, Inc.
2015 No. Kolmar St.
Chicago 39, Ill.

Electronic Engineering Co.
3223 Armitage Ave.
Chicago 47, Ill.

Electronic Prod. Mfg. Corp.
7300 Huron River Drive
Dexter, Mich.

Electronic Winding Co.
5031 Broadway
Chicago 40, Ill.

Essex Electronics Corp.
1060 Broad St.
Newark 2, N. J.

John E. Fast & Co.
3123 No. Pulaski Rd.
Chicago 41, Ill.

Scientific Industries
5320 Broadway
Chicago, Ill.

The F. W. Sickles Co.
165 Front St.
Chicopee, Mass.

Standard Coil Prod. Co.
2321 No. Pulaski Road
Chicago 22, Ill.

Standard Winding Co.
44-62 Johnes St.
Newburgh, N. Y.

Stanwyck Winding Co.
102 So. Lander St.
Newburgh, N. Y.

S-W Inductor Co.
1056 N. Wood St.
Chicago 22, Ill.

Teleradio Engineering Corp.
99 Wall St.
New York 5, N. Y.

Weller Mfg. Co.
516 Northampton St.
Easton, Pa.

COMMUNICATION RECEIVING & TRANSMITTING EQUIPMENT

The Hallicrafters Co.
2611 So. Indiana Ave.
Chicago 16, Ill.

Hammarlund Mfg. Co., Inc.
460 West 34th St.
New York 1, N. Y.

Jefferson-Travis Corp.
245 East 23rd St.
New York 10, N. Y.

National Company, Inc.
61 Sherman St.
Malden 48, Mass.

Radio Mfg. Engineers, Inc.
300 First Ave.
Peoria 6, Ill.

Kaar Engineering Co.
619 Emerson St.
Palo Alto, Cal.

DIAL CABLE

American Electric Cable Co.
181 Appleton St.
Holyoke, Mass.

Consolidated Wire & Assoc. Cos.
1635 So. Clinton St.
Chicago 16, Ill.

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

J.F.D. Mfg. Co.
4117 Ft. Hamilton Pkway.
Brooklyn 19, N. Y.

New England Electrical Works, Inc.
365 Main St.
Lisbon 1, N. H.

Walter L. Schott Co.
9306 Santa Monica Blvd.
Beverly Hills, Calif.

DIAL PARTS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Emblem Co.
Utica, N. Y.

American Radio Hardware Co.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Croname, Inc.
3701 No. Ravenswood Ave.
Chicago 13, Ill.

Emeloid Company
287 Laurel Ave.
Arlington, N. J.

Etched Products Corp.
3901 Queens Blvd.
Long Island City 1, N. Y.

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

L. F. Grammes & Sons, Inc.
366 Union St.
Allentown 2, Pa.

Insuline Corp. of America
36-02 35th St.
Long Island City 1, N. Y.

Leotone Radio Co.
63 Dey Stt.
New York 7, N. Y.

National Fabricated Products
2650 Belden Ave.
Chicago 47, Ill.

Printloid, Inc.
95 Mercer St.
New York 12, N. Y.

United-Carr Fastener Corp.
31 Ames St.
Cambridge 42, Mass.

CONNECTORS AND PLUGS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Phenolic Corp.
1830 So. 54th St.
Chicago 50, Ill.

American Radio Hardware Co.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Victor J. Andrew Company
363 East 75th St.
Chicago 19, Ill.

The Astatic Corp.
Harbor & Jackson Sts.
Conneaut, Ohio

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Cannon Electric Development Co.
3209 Humboldt St.
Los Angeles 31, Calif.

Cinch Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

International Resistance Co.
401 No. Broad St.
Philadelphia 8, Pa.

Kellogg Switchboard & Supply Co.
5650 Cicero Ave.
Chicago 38, Ill.

Remler Co., Ltd.
2101 Bryant St.
San Francisco 10, Calif.

H. B. Sherman Mfg. Co.
22 Barney St.
Battle Creek, Mich.

CONVERTERS *(See Generators)*

CRYSTALS

Bliley Electric Company
P. O. Box 1070
Erie, Pa.

Crystal Products Co.
1519 McGee St.
Kansas City 8, Mo.

Federal Engineering Co.
37 Murray St.
New York 7, N. Y.

Harvey Radio Laboratories, Inc.
447 Concord Ave.
Cambridge 38, Mass.

Kaar Engineering Co.
619 Emerson St.
Palo Alto, Calif.

Petersen Radio Company
2800 West Broadway
Council Bluffs, Iowa

Premier Crystal Lab., Inc.
63 Park Row
New York, N. Y.

Radio Mfg. Engineers, Inc.
300 First St.
Peoria 6, Ill.

RECTIFIERS, DRY DISC *(Also see Tubes, Special Purpose)*

Bradley Laboratories, Inc.
82 Meadow St.
New Haven 10, Conn.

Conant Electrical Laboratories
6500 "O" St.
Lincoln 5, Neb.

Electronic Engineering Co.
3223 Armitage Ave.
Chicago 47, Ill.

Electronic Laboratories, Inc.
122 West New York St.
Indianapolis 4, Ind.

Fansteel Metallurgical Corp.
2200 Sheridan Road
Chicago, Ill.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

McColpin-Christie Corp., Ltd.
4922 So. Figueroa St.
Los Angeles 37, Calif.

Radio Receptor Co., Inc.
251 W. 19th St.
New York 11, N. Y.

Richardson-Allen Corp.
15 West 20th St.
New York 11, N. Y.

Schauer Machine Co.
2060 Reading Road
Cincinnati 2, Ohio

Selenium Corp. of America
1717 W. Pico Blvd.
Los Angeles 15, calif.

Sheldon Electric o., Inc.
76 Coit St.
Irvington 11, N. J.

RELAYS

Advance Elect. & Relay Co.
1260 West 2nd St.
Los Angeles 26, Calif.

Allied Control Co., Inc.
2 East End Ave.
New York 21, N. Y.

American Coil & Eng. Co.
1271 No. Hermitage Ave.
Chicago 22, Ill.

Auth Elect. Specialty o., Inc.
422 East 53rd St.
New York 22, N. Y.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

C. P. Clare & Co.
612 N. Michigan Ave.
Chicago 22, Ill.

Dean W. Davis & Co., Inc.
1000 First St.
Kentland, Ind.

Electrical Windings, Inc.
2015 No. Kolmar
Chicago 39, Ill.

Grayhill Company
1 No. Pulaski Road
Chicago 24, Ill.

Guardian Electric Mfg. o.
1400 W. Washington Blvd.
Chicago 7, Ill.

Industrial & Commercial Electronics
P. O. Box 296
Belmont, Calif.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

Kurman Electric Company
35-18-37th St.
Long Island City 1, N. Y.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

Potter & Brumfield o., Inc.
617 No. Gibson St.
Princeton, Ind.

Price Bros. Co.
E. 2nd & Church Sts.
Frederick, Md.

Sigma Instruments, Inc.
70 Ceylon St.
Boston 21, Mass.

Signal Elect. Mfg. Co.
Broadway
Menominee, Mich.

Specialties Mfg. Company
3164 Cass Ave.
Detroit 1, Mich.

Struthers-Dunn, Inc.,
1321 Arch St.
Philadelphia 7, Pa.

Ward Leonard Elect. Co.
53 W. Jackson Blvd.
Chicago 4, Ill.

Worner Electronic Devices
609 W. Lake St.
Chicago 6, Ill.

RESISTORS, FIXED

Allen-Bradley Co.
136 W. Greenfield Ave.
Milwaukee 2, Wisc.

American Coil & Eng. Co.
1271 N. Hermitage Ave.
Chicago 22, Ill.

Atlas Resistor Co.
423 Broome St.
New York 13, N. Y.

The Carborundum Co.
Niagara Falls, N. Y.

Ceramic Reactance Corp.
Elm Street
Franklinville, N. Y.

Clarostat Mfg. Co., Inc.
130 Clinton St.
Brooklyn 2, N. Y.

Continental Carbon, Inc.
13900 Lorraine Ave.
Cleveland 11, Ohio

The Daven Co.
191 Central Ave.
Newark 4, N. J.

Erie Resistor Company
Erie, Pa.

Haines Mfg. Co.
274 McKibben St.
Brooklyn 6, N. Y.

Hardwick Hindle, Inc.
40 Hermon St.
Newark 5, N. J.

Instrument Resistors Co.
25 Amity St.
Little Falls, N. J.

International Resistance Co.
401 No. Broad St.
Philadelphia 8, Pa.

Jeffers Electronics
St. Marys, Pa.

Lectrohm, Inc.
5125 W. 25th St.
Cicero 50, Ill.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

The Ohio Carbon Co.
12508 Berea Road
Cleveland 11, Ohio

Ohmite Mfg. Co.
4835 Flournoy St.
Chicago 44, Ill.

Precision Resistor Co.
334 Badger Ave.
Newark, N. J.

Scientific Industries
5320 Broadway
Chicago, Ill.

Shallcross Mfg. Co.
Jackson & Pusey Ave.
Collingdale, Pa.

Speer Resistor Corp.
St. Marys, Pa.

Stackpole Carbon Co.
Tannery St.
St. Marys, Pa.

Utah Radio Products Co.
820 Orleans St.
Chicago 10, Ill.

Ward Leonard Electric Co.
53 W. Jackson Blvd.
Chicago 4, Ill.

Wirt Co.
5221 Greene St.
Philadelphia 44, Pa.

SPEAKERS

Altec Lansing Corp.
1210 Taft Building
ofHllywood 28, Calif.

Atlas Sound Corp.
1443 39th St.
Brooklyn 18, N. Y.

Best Mfg. Co., Inc.
1200 Grove St.
Irvington 11, N. J.

The Brush Development Co.
3405 Perkins Ave.
Cleveland 14, Ohio

Cinaudagraph Speakers, Inc.
3911 So. Michigan Ave.
Chicago 15, Ill.

Crescent Industries
4140 W. Belmont Ave.
Chicago 41, Ill.

The Erwood Co.
223 W. Erie St.
Chicago 10, Ill.

General Instrument Corp.
829 Newark Ave.
Elizabeth 3, N. J.

Jensen Radio Mfg. Co.
6601 So. Laramie Ave.
Chicago 38, Ill.

The Magnavox Company
2131 Bueter Road
Fort Wayne 4, Ind.

Operadio Mfg. Co.
13th & Indiana Sts.
St. Charles, Ill.

Oxford Tartak Radio Corp.
3911 So. Michigan Ave.
Chicago 15, Ill.

Permoflux Corporation
4916 W. Grand Ave.
Chicago, Ill.

Quam-Nichols Co.
33rd Place & Cottage Grove Ave.
Chicago 16, Ill.

Racon Electric Co.
52 East 19th St.
New York 3, N. Y.

Radio Speakers, Inc.
221 E. Cullerton St.
Chicago 16, Ill.

Rola Company, Inc.
2530 E. Superior Ave.
Cleveland 14, Ohio

Speakers Corp. of America
1725 W. North Ave.
Chicago 22, .Ill

University Laboratories
225 Varick St.
New York 14, N. Y.

Utah Radio Prod. Co.
80 Orleans St.
Chicago 10, Ill.

Wright, Inc.
2233 University Ave.
St. Paul 4, Minn.

SOCKETS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

Alladin Radio Industries, Inc.
501 W. 35th St.
Chicago 16, Ill.

American Phenolic Corp.
1830 So. 54th Ave.
Chicago 50, Ill.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Cinah Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

H. H. Eby, Inc.
18 W. helton Ave.
Philadelphia 13, Pa.

A. W. Franklin Mfg. Co., Inc.
175 Varick St.
New York 14, N. Y.

Hammarlund Mfg. Co., Inc.
460 West 34th St.
New York 1, N. Y.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Micarta Fabricators, Inc.
5324 Ravenswood Ave.
Chicago 40, Ill.

James Millen Mfg. Co., Inc.
Malden, Mass.

National Co., Inc.
61 Sherman St.
Malden 48, Mass.

National Fabricated Prod.
2650 Belden Ave.
Chicago 47, Ill.

SOLDERING IRONS

Drake Electric Works, Inc.
3656 Lincoln Ave.
Chicago 13, Ill.

Electric Soldering Iron Co., Inc.
2145 West Elm St.
Deep River, Con.

Hexacon Elect. Co
161 W. Clay Ave.
Roselle Park, N. J.

Jackson Electro Corp.
124 Bleecker St.
New York 12, N. Y.

Lectrohm, Inc.
5125 W. 25th St.
Cicero 50, Ill.

The Met-Elec Company
3112 West 28th St.
Minneapolis 5, Minn.

The Lenk Mfg. Co.
Newton Lower Falls 62, Mass.

Sound Equipment Corp. of California
3903 San Fernando Road
Glendale 4, Calif.

Ungar Electric Tools, Inc.
615 Ducommun St.
Los Angeles 12, Calif.

Vasco Electrical Mfg. Co.
4116 Avalon Blvd
Los Angeles, Calif.

Vulcan Electric Co.
600 Broad St.
Lynn, Mass.

Weller Mfg. Co.
516 Northampton St.
Easton, Pa.

Wellmade Elect. Mfg. Co.
Railroad Square
Torrington, Conn.

Wm. Weston & Company
163 Second St.
San Francisco 17, Calif.

STAMPINGS

American Radio Hardware Co.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Dayton Rogers Mfg. Co.
2835 12th Ave. So.
Minneapolis 7, Minn.

Erie Can Company
816 W. Erie St.
Chicago 22, Ill.

Edwin I. Guthman Co., Inc.
15 So. Throop St.
Chicago 7, Ill.

The Huenefeld Co.
2701 Spring Grove Ave.
Cincinnati 25, Ohio

McNaught Metal Products Co., Inc.
3982 Barry Ave.
Chicago 18, Ill.

Par-Metal Products Corp.
32-62 49th St.
Long Island City 3, N. Y.

Paton-MacGuyer Co.
17 Virginia Ave.
Providence 5, R. I.

Spirling Products Co.
64 Grand St.
New York 13, N. Y.

Shakeproof, Inc.
2501 No. Keeler Ave.
Chicago 39, Ill.

Thomas & Skinner Steel Prod. Co.
1120 East 23rd St.
Indianapolis 5, Ind.

SWITCHES

Acro Electric Company
1305 Superior Ave.
Cleveland 14, Ohio

Arrow-Hart & Hegeman Elect. Co.
103 Hawthorne St.
Hartford 6, Conn.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Carling Electric, Inc.
626 Capitol Ave.
Hartford 6, Conn.

Centralab Div. of Globe-Union, Inc.
900 E. Keele Ave.
Milwaukee 1, Wisc.

The Daven Co.
191 Central Ave.
Newark 4, N. J.

Eastern Air Devices, Inc.
585 Dean St.
Brooklyn 17, N. Y.

Electronic Products Mfg. Corp.
7300 Huron River Drive
Dexter, Mich.

Federal Anti-Capacity Switch Corp.
1200 Niagara St.
Buffalo, N. Y.

General Control Company
1200 Soldiers Field Road
Boston 34, Mass.

General Electric Co.
1285 Boston Ave.
Bridgeport 8, Conn.

Grayhill Company, Inc.
1 No. Pulaski Road
Chicago 24, Ill.

American Radio Hardware Co., Inc.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Hart Mfg. Company
110 Bartholomew Ave.
Hartford 2, Conn.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

Micro Switch Div. of Industrial Corp.
Freeport, Ill.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

Oak Mfg. Company
1260 Clybourn Ave.
Chicago 25, Ill.

Ohmite Mfg. Co.
4835 Flournoy St.
Chicago 44, Ill.

The Shallcross Mfg. Co.
Jackson & Pusey Ave.
Collingsdale, Pa.

Stackpole Carbon Co.
Tannery St.
St. Marys, Pa.

Utah Radio Products Co.
820 Orleans St.
Chicago 10, Ill.

Westinghouse Elect. & Mfg. Co.
East Pittsburgh, Pa.

Wirt Company
5221 Greene St.
Philadelphia 44, Pa.

TERMINAL STRIPS *(See Binding Posts and Terminals)*

TEST EQUIPMENT

Associated Research, Inc.
231 So. Green St.
Chicago 7, Ill.

Boonton Radio Corp.
518 Main St.
Boontoon, N. J.

Browning Laboratories, Inc.
750 Main St.
Winchester, Mass.

The Clough-Brengle Co.
5501 Broadway
Chicago 50, Ill.

Cornell-Dubilier Elect. Corp.
1605 E. Rodney French Blvd.
New Bedford, Mass.

The Daven Co.
191 Central Ave.
Newark 4, N. J.

TEST EQUIPMENT (CONT.)

Dayco Radio Corp.
915 Valley St.
Dayton 4, Ohio

Electronic Development Co.
1336 No. Saddle Creek Road
Omaha 3, Neb.

Ferris Instrument Co.
110-12 Cornelia St.
Boonton, N. J.

General Radio Co.
30 State St.
Cambridge 39, Mass.

Harvey Radio Laboratories, Inc.
447 Concord Ave.
Cambridge 38, Mass.

Hewlett-Packard Co.
395 Page Mill Road
Palo Alto, Calif.

The Hicock Elect. Inst. Co.
10514 DuPont Ave.
Cleveland 8, Ohio

Industrial Instruments, Inc.
156 Culver Ave.
Jersey City 5, N. J.

Jackson Elect. Inst. Co.
18 So. Patterson Blvd.
Dayton 1, Ohio

JBT Instruments, Inc.
441 Chapel St.
New Haven 8, Conn.

Leeds & Northrup Co.
4970 Stenton ve.
Philadelphia 44, Pa.

Marion Elect. Inst. Co.
Manchester, N. H.

McMurdo Silver Co.
1240 Main St.
Hartford 3, Conn.

Measurements Corp.
116 Monroe St.
Boonton, N. J.

Meissner Mfg. Div. Maguire Ind., Inc.
7th & Belmont
Mt. Carmel, Ill.

James Millen Mfg. Co., Inc.
Malden, Mass.

Monarch Mfg. Co.
2014 No. Major Ave.
Chicago 39, Ill.

Panoramic Radio Corp.
242 West 55th St.
New York 19, N. Y.

Precision Apparatus Co.
92-27 Horace Harding Blvd.
Elmhurst, N. Y.

Radex Corporation
53 W. Jackson Blvd.
Chicago 4, Ill.

Radio City Products Co., Inc.
127 West 26th St.
New York 1, N. Y.

Radiotechnic Laboratories
1328 Sherman Ave.
Evanston, Ill.

Reiner Electronics Co.
152 West 25th St.
New York 1, N. Y.

Remler Company, Ltd.
2101 Bryant St.
San Francisco 10, Calif.

Roller-Smith Co.
Bethlehem, Pa.

Shallcross Mfg. Co.
Jackson & Pusey Ave.
Collingdale, Pa.

Simpson Electric Co.
5208 W. Kinzie St.
Chicago 44, Ill.

Special Products Co.
9115 Brookfield Road
Silver Springs, Md.

Superior Instrument Co.
227 Fulton St.
New York 7, N. Y.

Supreme Instrument Co.
412 Supreme Bldg.
Greenwood, Miss.

The Triplett Elect. Inst. Co.
193 Harmon Road
Bluffton, Ohio

Triumph Mfg. Co.
913 W. Van Buren St.
Chicago 7, Ill.

Weston Electrical Inst. Corp.
614 Frelinghuysen Ave.
Newark 5, N. J.

TOOLS

American Radio Hardware Co.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

BMP Company
Boonton, N. J.

Bronx Insulated Wire & Cable
2026 Webster Ave.
Bronx, N. Y.

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

General Hardware Mfg. Co.
117 Duane St.
New York 7, N. Y.

Greenlee Tool Co.
2136 12th St.
Rockford, Ill.

Dayco Radio Corp.
915 Valley St.
Dayton 4, Ohio

Electronic Development Co.
1336 No. Saddle Creek Road
Omaha 3, Neb.

Ferris Instrument Co.
110-12 Cornelia St.
Boonton, N. J.

General Radio Co.
30 State St.
Cambridge 39, Mass.

Harvey Radio Laboratories, Inc.
447 Concord Ave.
Cambridge 38, Mass.

Hewlett-Packard Co.
395 Page Mill Road
Palo Alto, Calif.

Vaco Products Co.
317 E. Ootario St.
Chicago 11, Ill.

TRANSFORMERS, AUDIO, POWER AND CHOKES

Acme Electric & Mfg. Co.
31 Water St.
Cuba 4, N. Y.

Altec Lansing Corp.
1210 Taft Building
Hollywood 28, Calif.

American Transformer Co.
178 Emmet St.
Newark 5, N. J.

Victor J. Andrew Co.
363 E. 75th St.
Chicago 19, Ill.

Audio Development Co.
2833 13th Ave. S.
Minneapolis 7, Minn.

Chicago Transformer Corp.
3501 W. Addison St.
Chicago 18, Ill.

Communication Parts
1101 N. Paulina St.
Chicago 22, Ill.

Dean W. Davis & Co., Inc.
1000 First St.
Kentland, Ind.

Dinion Coil Co., Inc.
North St.
Caledonia, N. Y.

Dongan Elect. Mfg. Co.
2987 Franklin St.
Detroit, Mich.

Electrical Windings, Inc.
2015 No. Kolmar
Chicago 39, Ill.

Electronic Engineering Co.
3223 W. Armitage Ave.
Chicago 47, Ill.

Electronic Transformer Co.
207 West 25th St.
New York, N. Y.

Ferranti Electric, Inc.
30 Rockefeller Plaza
New York, N. Y.

A. P. Foster Company
719 Wyoming Ave.
Lockland 15, Ohio

Freed Transformer Co.
72 Spring St.
New York 12, N. Y.

General Transformer Corp.
1250 W. Van Buren St.
Chicago 7, Ill.

Robert M. Hadley Co.
709-11 East 61st St.
Los Angeles 1, Calif.

The Halldorson Co.
4500 Ravenswood Ave.
Chicago 40, Ill.

Hercules Elect. & Mfg. Co., Inc.
2416 Atlantic Ave.
Brooklyn 1, N. Y.

Jefferson Electric Co.
Bellwood, Ill.

Kenyon Transformer Co., Inc.
840 Barry St.
New York 59, N. Y.

The Magnavox Company
2131 Bueter Road
Fort Wayne 4, Ind.

Magnetic Winding Co.
418 So. 16th St.
Easton, Pa.

Merit Coil & Trans. Corp.
4427 No. Clark St.
Chicago 40, Ill.

Midwest Electric Products Co.
Mankato, Minn.

Newcomb Audio Prod. Co.
2815 So. Hill St.
Los Angeles 7, Calif.

New York Transformer Co.
26 Waverly Place
New York 3, N. Y.

Stamford Elect. Prod. Co., Inc.
Sunnyside Ave.
Stamford, Conn.

Standard Transformer Co.
1500 W. Halsted St.
Chicago 22, Ill.

Thermador Elect. Mfg. Co.
5119 So. Riverside Drive
Los Angeles 22, Calif.

Thordarson Elect. Mfg. Co.
500 W. Huron St.
Chicago 10, Ill.

United Transformer Corp.
150 Varick St.
New York 13, N. Y.

Universal Specialties Co.
540 No. Michigan Ave.
Chicago 11, Ill.

Utah Radio Products Co.
820 Orleans St.
Chicago 10, Ill.

TUBES, RECEIVING

General Electric Co. (Ken-Rad Div.)
227 E. Ninth St.
Owensboro, Ky.

Hytron Radio Electronics Corp.
76 Lafayette St.
Salem, Mass.

National Union Radio Corp.
15 Washington St.
Newark 2, N. J.

North American Philips Co.
100 East 42nd St.
New York 17, N. Y.

Raytheon Manufacturing Co.
Foundry Ave.
Waltham, Mass.

RCA Radiotron, Inc.
Harrison, N. J.

Standard Arcturus Corp.
30 Church St.
Newark 2, N. J.

Sylvania Electric Products, Inc.
500 Fifth Ave.
New York 18, N. Y.

Tung-Sol Lamp Works, Inc.
95 Eighth Ave.
Newark 4, N. J.

Western Electric Co., Inc.
195 Broadway
New York 7, N. Y.

TUBES, SPECIAL PURPOSE

Amperex Electronic Products Corp.
79 Washington St.
Brooklyn 1, N. Y.

Continental Electric Company
715 Hamilton St.
Geneva, Ill.

TUBES, SPECIAL PURPOSE (CONT.)

Amperite Co.
561 Broadway
New York 12, N. Y.

Eitel-McCullough, Inc.
298 San Mateo Ave.
San Brun, Calif.

Federal Telephone & Radio Corp.
591 Broad St.
Newark, N. J.

Heintz & Kaufman, Ltd.
So. San Francisco, Calif.

Hytron Radio & Electronic Corp.
76 Lafayette St.
Salem, Mass.

Jennings Radio Mfg. Co.
1098 E. Williams St.
San Jose 12, Calif.

JFD Mfg. Co.
4117 Ft. Hamilton Parkway
Brooklyn 19, N. Y.

McColpin-Christie Corp., Ltd.
4922 So. Figueroa St.
Los Angeles 37, Calif.

National Union Radio orp.
15 Washington St.
Newark 2, N. J.

Raytheon Mfg. Co.
Foundry Ave.
Waltham, Mass.

Allen B. Dumont Labs., Inc.
2 Main Ave.
Passaic, N. J.

Radio Corp. of America
Camden, N. J.

The Rauland Corp.
4245 No. Knox Ave.
Chicago 41, Ill.

Schuttig & Company
9th & Kearney Sts. N.E.
Washington, D. C.

Sheldon Electric Co., Inc.
76 Coit St.
Irvington 11, N. J.

Standard Arcturus Corp.
30 Court St.
Newark 2, N. J.

Sylvania Elect. Products, Inc.
500 Fifth Ave.
New York 18, N. Y.

Taylor Tubes, Inc.
2312 Wabansia Ave.
Chicago 47, Ill.

Tung-Sol Lamp Works, Inc.
95 Eighth Ave.
Newark 4, N. J.

United Electronics Co.
42 Spring St.
Newark 2, N. J.

VIBRATORS

American Television & Radio Corp.
300 East 4th St.
St. Paul 1, Minn.

Electronic Laboratories, Inc.
122 West New York Ave.
Indianapolis 4, Ind.

Electronic Products Mfg. Corp.
7300 Huron River Drive
Dexter, Mich.

James Vibropower Co.
1551 Thomas St.
Chicago 22, Ill.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

Oak Mfg. Co.
1260 Clybourn Ave.
Chicago 25, Ill.

Radiart Corp.
3571 W. 62nd St.
Cleveland 2, Ohio

Utah Radio Products Co.
820 Orleans St.
Chicago 10, Ill.

VOLUME CONTROLS AND VARIABLE RESISTORS

Centralab Div. of Globe Union, Inc.
900 E. Keefe ve.
Milwaukee 1, Wisc.

Clarostat Mfg. Co., Inc.
130 Clinton St.
Brooklyn 2, N. Y.

DeJur Amsco Corp.
4501 Northern Blvd.
Long Island City 1, N. Y.

International Resistance Co.
401 No. Broad St.
Philadelphia 8, Pa.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

The Muter Co.
1255 So. Michigan Ave.
Chicago 5, Ill.

Wirt Company
5221 Greene St.
Philadelphia 44, Pa.

Consolidated Wire & Assoc. Cos.
1635 So. Clinton St.
Chicago 16, Ill.

The Daven Co.
191 Central Ave.
Newark 4, N. J.

Ohmite Mfg. Co.
4835 Flournoy St.
Chicago 44, Ill.

Stackpole Carbon Co.
Tannery St.
St. Marys, Pa.

Utah Radio Products Co.
820 Orleas St.
Chicago 10, Ill.

Ward Leonard Elect. Co.
53 W. Jackson Blvd.
Chicago 4, Ill.

WIRE AND CABLE

Acorn Insulated Wire Co.
225 King St.
Brooklyn, N. Y.

Alpha Wire Corp.
50 Howard St.
New York 13, N. Y.

American Electric Cable Co.
181 Appleton St.
Holyoke, Mass.

Anaconda Wire & Cable Co.
25 Broadway
New York 4, N. Y.

Belden Mfg. Co.
4647 W. Van Buren St.
Chicago 44, Ill.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

Boston Insulated Wire & Cable Co.
65 Bay St.
Dorchester, Mass.

Collyer Ins. Wire Co.
249 Roosevelt Ave.
Pawtucket, R. I.

Cornish Wire Co.
15 Park Row
New York 7, N. Y.

Consolidated Wire & Assoc. Cos.
1635 So. Clinton St.
Chicago 16, Ill.

Crescent Insulated Wire & Cable Co.
Trenton, N. J.

Diamond Wire & Cable Co.
16th & Union Sts.
Chicago Heights, Ill.

Essex Wire Corporation
1601 Wall St.
Fort Wayne, Ind.

General Insulated Wire Works, Inc.
69 Gordon Ave.
Providence 5, R. I.

Holyoke Wire & Cable Corp.
Holyoke, Mass.

Lenz Electric Mfg. Co.
1751 No. Western Ave.
Chicago 47, Ill.

Lowell Ins. Wire Co.
171 Lincoln St.
Lowell, Mass.

New England Electrical Works, Inc.
365 Main St.
Lisbon 1, N. H.

The Okonite Co.
Passaic, N. J.

The Plastic Wire and Cable Corp.
3 South Golden St.
Norwich, Conn.

Rea Magnet Wire Co., Inc.
East Pontiac St.
Fort Wayne 4, Ind.

Royal Electric Co., Inc.
95 Grand Ave.
Pawtucket, R. I.

Specialties Mfg. Co.
3164 Cass Ave.
Detroit 1, Mich.

Western Insulated Wire Co.
1151 So. Broadway
Los Angeles 15, Ca.ifl

FILTERS (INTERFERENCE ELIMINATORS)

Aerovox Corporation
740 Belleville Ave.
New Bedford 54, Mass.

Cornell-Dublier Elect. Corp.
1605 E. Rodney French Blvd.
New Bedford, Mass.

Tobe Deutschmann Corp.
Washington St.
Canton, Mass.

Ferranti Electric Co.
30 Rockefeller Plaza
New York, N. Y.

Industrial Condenser Corp.
3243-65 N. Calif. Ave.
Chicago 18, Ill.

Kellog Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

P. R. Mallory & Co., Inc.
3209 E. Washington St.
Indianoplis 6, Ind.

Solar Mfg. Corp.
285 Madison Ave.
New York 17, N. Y.

Sprague Products Co.
Marshall St.
No. Adams, Mass.

S-W Inductor Co.
1056 No. Wood St.
Chicago 22, Ill.

Technical Appliance Corp.
518 West 34th St.
New York 13, N. Y.

GENERATORS

American Television & Radio Co.
300 East 4th St.
St. Paul 1, Minn.

Atlas Aircraft Products Corp.
405 E. 42nd St.
New York 17, N. Y.

Carter Motor Co.
1608 Milwaukee Ave.
Chicago 47, Ill.

Century Electric Co.
1806 Pine St.
St. Louis 3, Mo.

Eicor, Inc .
1501 W. Congress St.
Chicago 7, Ill.

Electric Specialty Co.
211 South St.
Stamfor, Conn.

Electronic Laboratories, Inc.
122 West New York St.
Indianoplis 4, Ind.

General Electric Co.
1 River Rd.
Schenectady 5, N. Y.

Holtzer-Cabot, Signal Div.
400 Stuart St.
Boston 17, Mass.

Janette Mfg. Co.
556 W. Monroe St.
Chicago 6, Ill.

Kato Engineering Co.
530 No. Front St.
Mankato, Minn.

D. W. Onan & Sons
2033 Royalston Ave.
Minneapolis 5, Minn.

Pioneer Gen-E-Motor Corp.
5841-49 Dickens Ave.
Chicago 39, Ill.

Robbins & Myers
1345 Lagonda Ave.
Springfield, Ohio

Small Motors, Inc.
1322 Elston Ave.
Chicago 22, Ill.

Westinghouse Elect. & Mfg. Co.
East Pittsburgh, Pa.

Winchanger Corp.
East 7th & Division
Sioux City 6, Iowa

HARDWARE

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Radio Hardware Co., Inc.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Cinch Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

Goat Metal Stampings, Inc.
314 Dean St.
Brooklyn 17, N. Y.

Ilsco Copper Tube & Prod., Inc.
Mariemont
Cincinnati 27, Ohio

H. B. Sherman Mfg. Co.
22 Barney St.
Battle Creek, Mich.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Littlefuse, Inc.
4757 No. Ravenswood
Chicago 40, Ill.

Manufacturers Screw Products
216 W. Hubbard St.
Chicago 10, Ill.

Frank W. Morse Co.
301 Congress St.
Boston, Mass.

Radio Essentials, Inc.
110 E. 3rd St.
Mt. Vernon, N. Y.

Walter L. Schott Co.
9306 Santa Monica Blvd.
Beverly Hills, Calif.

Shakeproof, Inc.
2501 No. Keeler Ave.
Chicago 39, Ill.

Simmons Fastener Corp.
P. O. Box 1230
Albany 1, N. Y.

Zierick Mfg. Corp.
385 Gerard Ave.
Bronx, N. Y.

HEADPHONES

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Best Mfg. Co., Inc.
1200 Grove St.
Irvington 11, N. J.

The Brush Development Co.
3405 Perkins Ave.
Cleveland 14, Ohio

C. F. Cannon Co.
Springwater, N. J.

Conn. Telephone & Elect. Co.
70 Brittania St.
Meriden, Conn.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

William J. Murdock
158 Carter St.
Chelsea 50, Mass.

Trimm, Inc.
1770 W. Berteau Ave.
Chicago 13, Ill.

HORNS (Also see Speakers)

Altec Lansing Corp.
1210 Taft Building
Hollywood 28, Calif.

Atlas Sound Corp.
1443 39th St.
Brooklyn 18, N. Y.

Jensen Radio Mfg. Co.
6601 So. Laramie Ave.
Chicago 38, Ill.

Kainer & Company
763 W. Lexington St.
Chicago 7, Ill.

Langevin Co., Inc.
37 West 65th St.
New York, N. Y.

Operadio Mfg. Co.
St. Charles, Ill.

Oxford-Tartak Radio Corp.
3911 So. Michigan Ave.
Chicago 15, Ill.

Racon Electric Co., Inc.
52 E. 19th St.
New York 3, N. Y.

University Laboratories
225 Varick St.
New York 14, N. Y.

Utah Radio Prod. Co.
820 Orleans St.
Chicago 10, Ill.

Western Electric Co.
195 Broadway
New York 7, N. Y.

INSTRUMENTS *(See Test Equipment)*

INSULATING MATERIAL

American Phenolic Corp.
1830 So. 54th Ave.
Chicago 50, Ill.

American Radio & Hardware Co., Inc.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

William Brand & Co.
268 Fourth Ave.
New York 10, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Corning Glass Works
Corning, N. Y.

Curtis Development & Mfg. Co.
3226 N. 33rd St.
Milwaukee 1, Wisc.

Electronic Mechanics, Inc.
70 Clifton Blvd.
Clifton, N. J.

Farley & Loetscher Mfg. Co.
7th & White Sts.
Dubuque, Iowa

The Formica Insulation Co.
4614 Spring Grove Ave.
Cincinnati 32, Ohio

General Cement Mfg. Co.
919 Taylor Ave.
Rockford, Ill.

General Ceramic & Steatite Corp.
Crows Mill Road
Keasby, N. J.

General Laminated Prod., Inc.
2857 S. Halsted St.
Chicago 8, Ill.

Howard Mfg. Corp.
1401 So. Main St.
Council Bluffs, Iowa

The Insl-X Company, Inc.
857 Meeker Ave.
Brooklyn 22, N. Y.

B & C Insulation Prod., Inc.
261 Fifth Ave.
New York 16, N. Y.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

Irvington Varnish & Insul. Co.
10 Argyle Terrace
Irvington, N. J.

Isolantite, Inc.
343 Cartlandt St.
Belleville 9, N. J.

Keystone Electronics Co.
50 Franklin St.
New York 13, N. Y.

Micarta Fabricators, Inc.
5324 Ravenswood Ave.
Chicago 40, Ill.

Mitchell Rand Insul. Co.
51 Murray St.
New York 7, N. Y.

Mycalex Corp. of America
60 Clifton Blvd.
Clifton, N. J.

Precision Specialties
210 No. Western Ave.
Los Angeles 4, Calif.

Printloid, Inc.
93 Mercer St.
New York 12, N. Y.

Walter L. Schott Co.
9306 Santa Monica Blvd.
Beverly Hills, Calif.

Spaulding Fibre Co.
310 Wheeler St.
Tonawanda, N. Y.

Teckna Company
223rd St. & Northern Blvd.
Bayside, L. I., N. Y.

Virginia Plak Company
270 Madison Ave.
New York 16, N. Y.

Wilmington Fibre Specialty Co.
Wilmington 99, Del.

JACKS & PLUGS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

American Phenolic Corp.
1830 So. 54th Ave.
Chicago 50, Ill.

American Radio Hardware Co.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Birnbach Radio Co., Inc.
145 Hudson St.
New York 13, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Cinch Mfg. Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

Conn. Telephone & Elect. Co.
70 Brittania St.
Meriden, Conn.

Hugh H. Elby, Inc.
18 W. Chelton Ave.
Philadelphia 13, Pa.

A. W. Franklin Mfg. Corp.
175 Varick St.
New York 14, N. Y.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Audio Development Co.
2833 13th Ave. So.
Minneapolis 7, Minn.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Barker & Williamson
235 Fairfield Ave.
Upper Darby, Pa.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Howard B. Jones Co.
2460 W. George St.
Chicago 11, Ill.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

Radio Essentials, Inc.
110 E. 3rd St.
Mt. Vernon, N. Y.

Universal Microphone Co.
424 Warren Lane
Inglewood, Calif.

Utah Radio Prod. Co.
820 Orleans St.
Chicago 10, Ill.

KEYS, TELEGRAPH

American Radio Hardware Co., Inc.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

J. H. Bunnell & Co.
81 Prospect St.
Brooklyn, N. Y.

M. M. Fleron & Son, Inc.
113 No. Broad St.
Trenton, N. J.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

Les Logan & Co.
530 Gough St.
San Francisco, Calif.

McElroy Manufacturing Corp.
82 Brookline Ave.
Boston 15, Mass.

Remler Co., Ltd.
2101 Bryant St.
San Francisco 10, Calif.

Signal Elect. Mfg. Co.
Broadway
Menominee, Mich.

Telegraph Apparatus Co.
325 W. Huron St.
Chicago 10, Ill.

Vibroplex Co., Inc.
833 Broadway
New York 12, N. Y.

KNOBS AND DIALS

Alden Products Co.
117 No. Main St.
Brockton 64, Mass.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

Croname, Inc.
3701 No. Ravenswood Ave.
Chicago 13, Ill.

Harry Davies Molding Co.
1428 No. Wells St.
Chicago 10, Ill.

Virginia Plak Company
270 Madison Ave.
New York 16, N. Y.

KNOBS AND DIALS (CONT.)

Kurz-Kasch, Inc.
1421 So. Broadway
Dayton 1, Ohio

Waterbury Button Co.
835 So. Main St.
Waterbury, Conn.

METERS

Beede Electric Co.
Penacook, N. H.

Burlington Instrument Co.
214 No. 4th St.
Burlington, Iowa

Burton-Rogers Co.
857 Boylston St.
Boston 16, Mass.

DeJur-Ansco Corp.
4501 Northern Blvd.
Long Island City 1, N. Y.

Electronic Development Co.
1336 No. Saddle Creek Road
Omaha 3, Neb.

The Hicock Elect. Inst. Co.
10514 Dupont Ave.
Cleveland 8, Ohio

JBT Instruments, Inc.
441 Chapel St.
New Haven 8, Conn.

Marion Electrical Inst. Co.
Manchester, N. H.

Meters, Inc.
915 Riveria Drive
Indianapolis 5, Ind.

Readrite Meter Works
135 E. College Ave.
Bluffton, Ohio

Roller-Smith Co.
Bethlehem, Pa.

Simpson Electric Co.
5208 W. Kinzie St.
Chicago 44, Ill.

Supreme Instruments Corp.
412 Supreme Building
Greenwood, Miss.

The Triplett Elect. Inst. Co.
193 Harmon Ave.
Bluffton, Ohio

Weston Electrical Instrument Corp.
614 Frelinghuysen Ave.
Newark 5, N. J.

MICROPHONES

American Microphone Co., Ltd.
1915 So. Western Ave.
Los Angeles 7, Calif.

Amperite Co.
561 Broadway
New York, N. Y.

The Astatic Corp.
Harbor & Jackson Sts.
Conneaut, Ohio

The Brush Development Co.
3405 Perkins Ave.
Cleveland 14, Ohio

Electro-Voice, Inc.
1239 South Bend Ave.
South Bend 24, Ind.

Shure Brothers
225 W. Huron St.
Chicago 10, Ill.

The Turner Co.
919 17th St. N.E.
Cedar Rapids, Iowa

Universal Microphone Co.
424 Warren Lane
Inglewood, Calif.

Western Electric Co., Inc.
195 Broadway
New York 7, N. Y.

MICROPHONE STANDS

American Microphone Co., Ltd.
1915 So. Western Ave.
Los Angeles 7, Calif.

The Astatic Corp.
Harbor & Jackson Sts.
Conneaut, Ohio

Atlas Sound Corp.
1443 39th St.
Brooklyn 18, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Eastern Mike Stand Co.
56 Christopher St.
Brooklyn 12, N. Y.

Electro-Voice, Inc.
1239 South Bend Ave.
South Bend 24, Ind.

The Erwood Co.
223 W. Erie St.
Chicago 10, Ill.

Racon Electric Co.
5 East 19th St.
New York 3, N. Y.

Shure Brothers
225 W. Huron St.
Chicago 10, Ill.

Special Products Co.
9115 Brookville Road
Silver Spring, Md.

Universal Microphone Co.
424 Warren Lane
Inglewood, Calif.

NAME PLATES, METAL DIALS, ESCUTCHEONS, ETC.

American Emblem Co.
Utica, N. Y.

Bastian Bros. Co.
1600 No. Clinton St.
Rochester, N. Y.

B & C Insul. Prod., Inc.
61 Fifth Ave.
New York 16, N. Y.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Croname, Inc.
3701 No. Ravenswood
Chicago 13, Ill.

Eastern Etching & Mfg. Co.
Chicopee, Mass.

Etched Products Corp.
39-01 Queens Blvd.
Long Island City 1, N. Y.

General Etching & Mfg. Co.
3070 W. Grand Ave.
Chicago, Ill.

L. F. Grammes & Sons, Inc.
366 Union St.
Allentown 2, Pa.

New England Etching & Plating
25 Spring St.
Holyoke, Mass.

Premier Metal Etching Co.
21-03 44th Ave.
Long Island City, N. Y.

United-Carr Fastener Corp.
31 Ames St.
Cambridge 42, Mass.

NEEDLES (Cutting and Playback)

H. W. Acton Co.
370 7th Ave.
New York, N. Y.

Aero Needle Co.
619 No. Michigan Ave.
Chicago 11, Ill.

Audio Devices, Inc.
444 Madison Ave.
New York 22, N. Y.

Garrard Sales Corp.
401 Broadway
New York 13, N. Y.

Jensen Industries, Inc.
737 No. Michigan Ave.
Chicago 11, Ill.

Lowell Needle Co.
1 Wildare St.
Putnam, Conn.

Permo Products Corp.
6415 Ravenswood Ave.
Chicago 26, Ill.

Frank L. Capps Co.
244 West 49th St.
New York 19, N. Y.

Duotone Co.
799 Broadway
New York 3, N. Y.

The Eldeen Co.
504 No. Water St.
Milwaukee 2, Wisc.

Pfanstiehl Chemical Co.
105 Lakeview Ave.
Waukegan, Ill.

Phonograph Needle Mfg. Co.
42 Dudley St.
Providence 5, R. I.

Phono-Rec Mfg., Inc.
314 West 52nd St.
New York, N. Y.

Recoton Corp.
212 Fifth Ave.
New York 10, N. Y.

Wilcox-Gay Corp.
604 W. Seminary St.
Charlotte, Mich.

PANELS AND RACKS

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Croname, Inc.
3701 No. Ravenswood Ave.
Chicago 13, Ill.

Insuline Corp. of America
36-02 35th Ave.
Long Island City 1, N. Y.

E. F. Johnson Co.
206 Second Ave. N.W.
Waseca, Minn.

Karp Metal Prod. Co., Inc.
129—30th St.
Brooklyn 32, N. Y.

Par-Metal Products Corp.
36-62 49th St.
Long Island City 3, N. Y.

PHONOGRAPH MOTORS

Alliance Mfg. Co.
Lake Park Blvd.
Alliance, Ohio

Garrard Sales Corp.
401 Broadway
New York 13, N. Y.

General Industries Co.
Taylor & Olive Sts.
Elyria, Ohio

PHOTO-ELECTRIC CELL EQUIPMENT

Bradley Laboratories, Inc.
82 Meadow St.
New Haven 10, Conn.

Continental Electric Co.
715 Hamilton St.
Geneva, Ill.

Hugh H. Eby, Inc.
18 W. Chelton Ave.
Philadelphia 13, Pa.

General Electronics, Inc.
1819 Broadway
New York 23, N. Y.

Industrial & Commercial Electronics
P. O. Box 296
Belmont, Calif.

The Rauland Corp.
4245 No. Knox Ave.
Chicago 41, Ill.

Selenium Corp. of America
1717 W. Pico Blvd.
Los Angeles 15, Calif.

Worner Electronic Devices
609 West Lake St.
Chicago 6, Ill.

PHONO PICK-UPS AND CARTRIDGES

The Astatic Corp.
Harbor & Jackson Sts.
Conneaut, Ohio

Audak Company, Inc.
500 Fifth Ave.
New York 18, N. Y.

The Brush Development Co.
3405 Perkins Ave.
Cleveland 14, Ohio

Fairchild Camera & Inst. Co.
475 10th Ave.
New York 18, N. Y.

Garrard Sales Corp.
401 Broadway
New York 13, N. Y.

Pacific Sound Eqpt. Co.
1534 Cahuenga Blvd.
Hollywood, Cal.

Webster Electric Co.
Clark & DeKoven Ave.
Racine 1, Wisc.

Frank Rieber, Inc.
11916 W. Pico Blvd.
Los Angeles 34, Calif.

Shure Brothers
225 W. Huron St.
Chicago 10, Ill.

The Turner Co.
907 17th St. N.E.
Cedar Rapids, Iowa

PILOT LIGHT ACCESSORIES

American Radio Hardware Co., Inc.
152 McQuesten Parkway So.
Mt. Vernon, N. Y.

Automatic Electric Co.
1033 W. Van Buren St.
Chicago 7, Ill.

Bud Radio, Inc.
2118 E. 55th St.
Cleveland 3, Ohio

Cinch Manufacturing Corp.
2335 W. Van Buren St.
Chicago 12, Ill.

Croname, Inc.
3701 No. Ravenswood
Chicago 13, Ill.

Dial Light Co. of America, Inc.
900 Broadway
New York 3, N. Y.

Drake Mfg. Co.
1713 W. Hubbard St.
Chicago 22, Ill.

A. W. Franklin Mfg. Co.
175 Varick St.
New York 14, N. Y.

Gothard Mfg. Co.
1300 No. 9th St.
Springfield, Ill.

H. R. Kirkland Co.
8 King St.
Morristown, N. J.

Kellogg Switchboard & Supply Co.
6650 So. Cicero Ave.
Chicago 38, Ill.

Littlefuse, Inc.
4757 No. Ravenswood Ave.
Chicago 40, Ill.

Micarta Fabricators, Inc.
5324 Ravenswood Ave.
Chicago 40, Ill.

Pass & Seymour
Solvay Station
Syracuse, N. Y.

Radio Essentials, Inc.
110 E. 3rd St.
Mt. Vernon, N. Y.

United-Carr Fastener Co.
31 Ames St.
Cambridge 42, Mass.

POWER SUPPLIES (ELECTRONIC TYPE)

Altec Lansing Corp.
1210 Taft Building
Hollywood 28, Calif.

American Television & Radio Co.
300 East 4th St.
St. Paul 1, Minn.

General Transformer Corp.
1250 W. Van Buren St.
Chicago 7, Ill.

Harvey Radio Laboratories, Inc.
447 Concord Ave.
Cambridge 38, Mass.

Heyer Products Co., Inc.
471 Cortland St.
Belleville 9, N. J.

Ray Jefferson, Inc.
40 E. Merrick Road
Freeport, L. I., N. Y.

Kaar Engineering Co.
619 Emerson St.
Palo Alto, Calif.

Electro Products Laboratories
549 W. Randolph St.
Chicago 6, Ill.

Electronics Laboratories, Inc.
122 W. New York St.
Indianapolis 4, Ind.

P. R. Mallory & Co., Inc.
3029 E. Washington St.
Indianapolis 6, Ind.

Radiart Corporation
3571 West 62nd St.
Cleveland 2, Ohio

Radiotechnic Laboratory
1328 Sherman Ave.
Evanston, Ill.

Thordarson Elect. Mfg. Co.
500 W. Huron St.
Chicago 10, Ill.

United Transformer Corp.
150 Varick St.
New York 13, N. Y.

RECORD CHANGERS

Garrard Sales Corp.
401 Broadway
New York 13, N. Y.

General Industries Co.
Taylor & Olive Sts.
Elyria, Ohio

General Instrument Corp.
829 Newark Ave.
Elizabeth 3, N. J.

Meissner Mfg. Div. Maguire Ind., Inc.
7th & Belmont
Mt. Carmel, Ill.

J. P. Seeburg Corp.
1510 No. Dayton St.
Chicago, Ill.

V-M Corporation
Park Ave.
Benton Harbor, Mich.

Webster-Chicago Corp.
5622 Bloomingdale Ave.
Chicago 39, Ill.

RECORDING DISCS

Audio Devices, Inc.
444 Madison Ave.
New York 22, N. Y.

Duotone Co.
799 Broadway
New York 3, N. Y.

The Gould-Moody Co.
395 Broadway
New York 7, N. Y.

Phono-Rec Mfg., Inc.
314 West 52nd St.
New York, N. Y.

Presto Recording Corp.
242 W. 55th St.
New York 19, N. Y.

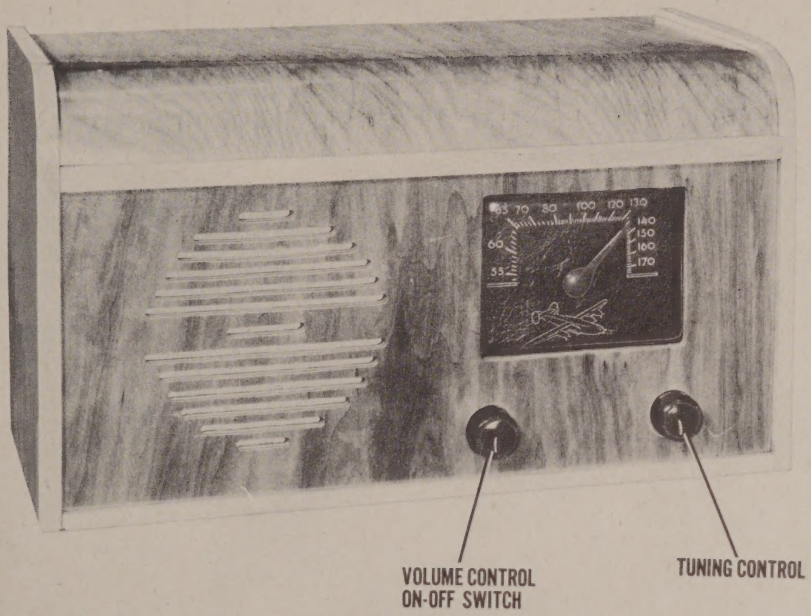
The Recordisc Corp.
395 Broadway
New York 7, N. Y.

Recoton Corp.
212 5th Ave.
New York 10, N. Y.

Wilcox-Gay Corp.
*604 W. Seminary St.
Charlotte, Mich.

Zephyr Products Corp.
160 E. 116th St.
New York 29, N. Y.

AERMOTIVE
MODEL 181-AD



AERMOTIVE
MODEL 181-AD

AERMOTIVE MODEL 181-AD

TRADE NAME	Aermotive Model 181-AD
MANUFACTURER	Aermotive Equipment Corp., 1632-8 Central St., Kansas City, Mo. (Formerly Air Communications, Inc.)
TYPE SET	AC-DC Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (EIGHT)	Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, (2) 50A5 Power Output, (2) 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .505 Amps. @ 117VAC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and adjust pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	460KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7.	" " " "
200MMFD	"	600KC	"	"	A8	Rock variable and adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AERMOTIVE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	14A7	14A7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B8	14B8	8W	
5	Power Output	50A5	50A5	6AA	
6	Power Output	50A5	50A5	6AA	
7	Rectifier	35Y4	35Y4	5AL	
8	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AERMOTIVE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	40	150		DY-3x40-150	EL-340	AF888D	UP6CJ44	FP357	Filter - Red
B	40	150							" - "
C	10	150							" - Yellow
10	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
11	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
12	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Audio Plate Decoup.
13	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
14	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	IF Cath. Bypass
15	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
16	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
17	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Diode
18	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.
19	50	500		MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
20	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Audio Grid*
21A	750	500							Fixed Padder*
B	750	500							" " *

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AERMOTIVE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR50	D11-133	M-58-S	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M26	41	SW-A	" " " " "

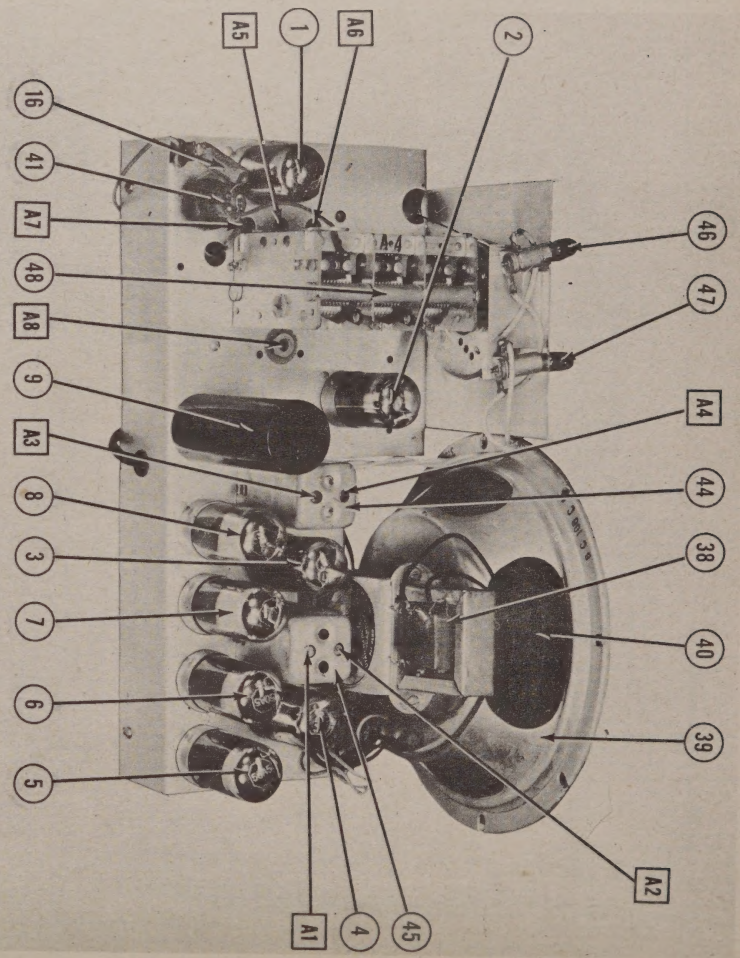
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AERMOTIVE PART No.	IRC PART No.	IDENTIFICATION CODES
23	15Ω	½		BW-½-150	Br.-Grn.-Br. RF Cathode
24	25KΩ	½		BTS-27K	Red-Grn.-Or. Oscillator Grid
25	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
26	25KΩ	½		BTS-27K	Red-Grn.-Or. IF Screen Dropping
27	150Ω	½		BW-½-150	Br.-Grn.-Br. IF Cathode
28	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Grid
30	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
31	150KΩ	½		BTS-150K	Br.-Grn.-Yl. AF Plate Decoupling
32	500KΩ	½		BTS-500K	Grn.-Blk.-Yl. Output Grid
33	200Ω	2		BW-2-220	Red-Blk.-Br. Output Cathode
34	1200Ω	1		BTA-1200	Br.-Red-Red Filter
35	30Ω	5		ABA-50	Line Dropping-See Note 1 & 2
36	60Ω	2		BW-2-56	Blue-Blk.-Blk. Line Dropping-See Note 1
37	60Ω	2		BW-2-56	Blue-Blk.-Blk. Line Dropping-See Note 1

Note 1 - Not used in all models. When item 35 is used in filament circuit, do not use Items 36 and 37 and vice versa.

Note 2 - On IRC replacement set slider at 30Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AERMOTIVE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	6000Ω CT	3.4Ω	400Ω CT	1.4Ω		A-3823	T22S6‡		‡Solder to original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AERMOTIVE PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-437† Mod. D8-RS		†Drill new mounting holes.
39	2500Ω	3.4Ω				
	CONE DIA.	VC DIA.				
40	7-3/4"	3/4"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

R F COILS

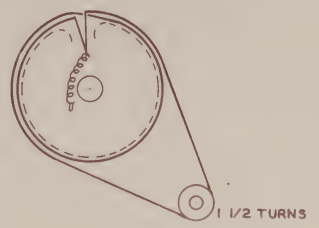
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AERMOTIVE PART No.	MEISSNER PART No.	
41	Ant. Coil	48Ω	6.2Ω		14-1026	
42	RF Coil	50Ω	4Ω		14-1027	
43	Osc. Coil		3Ω		14-1040	
44	Input IF	22Ω	30Ω		16-6658	
45	Output IF	24Ω	23Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AERMOTIVE PART No.		
46	Bayonet	6-8	0.15	Brown			Type 47
47	"	6-8	0.15	"			" "

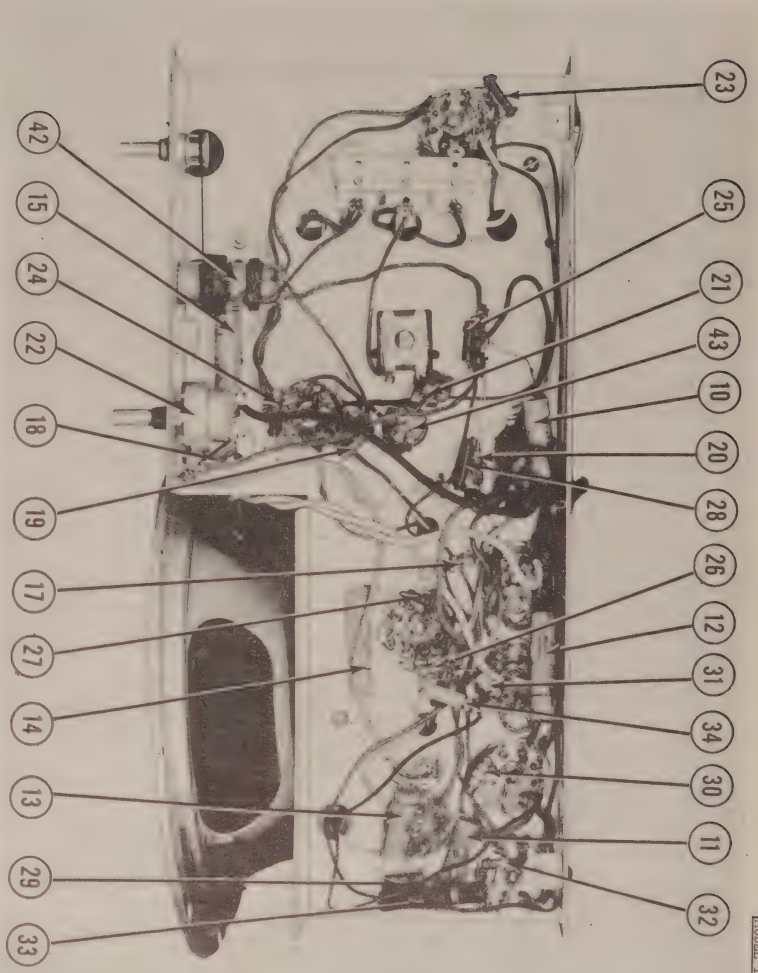
MISCELLANEOUS

ITEM No.	PART NAME	AERMOTIVE PART No.	NOTES
48	3 Gang Var.Cap.		(13-468 MMF each section)

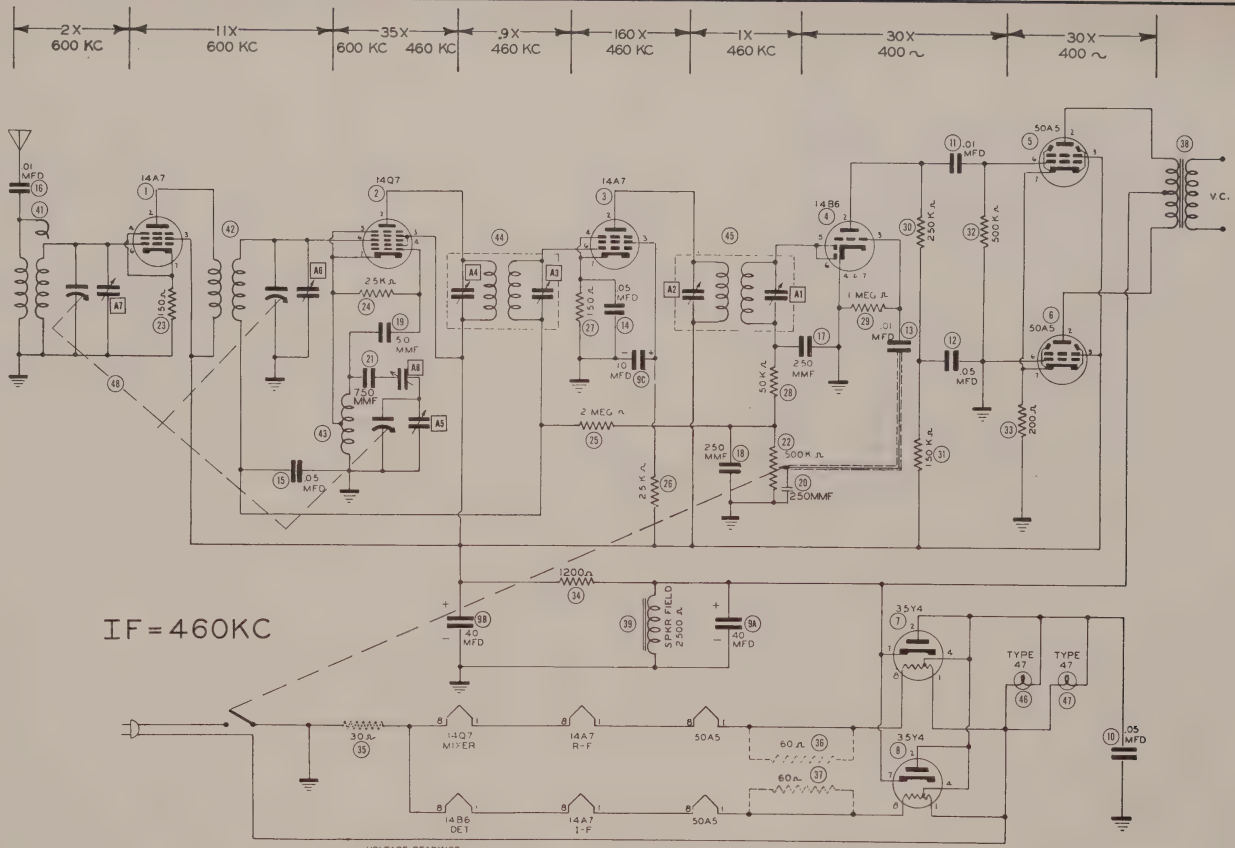


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AERMOTIVE MODEL 181-AD



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	14 V.AC	93V.DC	93V.DC	1.7 V.DC	0V.	0V.	1.7 V.DC	26V.AC
2	14Q7	14 V.AC	93V.DC	93V.DC	−2.4V.DC	0V.	−1 V.DC	0V.	0V.
3	14A7	28 V.AC	93V.DC	61V.DC	.8 V DC	0V.	−1 V.DC	.8V DC	15 V.AC
4	14B6	15 V.AC	47 V.DC	−5 V.DC	0V.	−8 V DC	−8 V. DC	0V.	0V.
5	50A5	82 V.AC	119 V.DC	93 V.DC	0V.	0V.	0V.	8.6 V. DC	28 V.AC
6	50A5	80 V.AC	122 V.DC	93 V.DC	0V.	0V.	0V.	8.6 V.DC	26 V.AC
7	35Y4	117 V.AC	113 V.AC	75 V.DC	113 V.AC	123 V.DC	123 V.DC	123 V.DC	82 V.AC
8	35Y4	117 V. AC	113 V.AC	0V.	113 V.AC	0V.	0V.	123 V.DC	80 V.AC

RESISTANCE READINGS

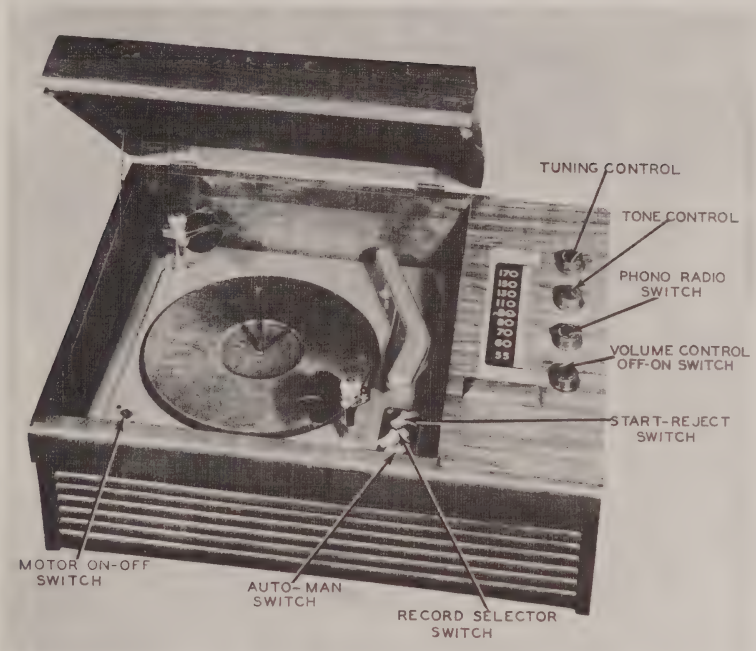
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	1 Ω	3 KΩ	3 KΩ	120 Ω	0 Ω	5.5 Ω	120 Ω	20 Ω
2	14Q7	1 Ω	3 KΩ	3 KΩ	23 KΩ	.3 Ω	2.5 MEG	.3 Ω	0 Ω
3	14A7	20 Ω	3 KΩ	27 KΩ	135 Ω	0 Ω	2.5 MEG	135 Ω	1 Ω
4	14B6	1 Ω	400 KΩ	970 KΩ	0 Ω	470 KΩ	470 KΩ	0 Ω	0 Ω
5	50A5	43 Ω	2.3 KΩ	3 KΩ	0 Ω	INF.	450 KΩ	180 Ω	20 Ω
6	50A5	43 Ω	2.3 KΩ	3 KΩ	0 Ω	INF.	0 Ω	180 Ω	20 Ω
7	35Y4	48 Ω	46 Ω	140 KΩ	46 Ω	2.3 KΩ	2.3 KΩ	2.3 KΩ	43 Ω
8	35Y4	48 Ω	46 Ω	INF.	46 Ω	INF.	INF.	2.3 KΩ	43 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIR KING MODEL 4704

TRADE NAME	Air King, Model 4704
MANUFACTURER	Air King Products Co., Inc., 1523 63rd St., Brooklyn, N.Y.
TYPE SET	AC Operated Automatic Radio - Phonograph Combination - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-125 Volts AC
TUNING RANGE—BROADCAST	525-1740KC RATING .265 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn variable fully closed and set pointer to last hole on left end of dial backplate. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
	Loop	1500KC	2nd hole from right end of dial backplate.	"	A5	Fashion loop from few turns of wire and radiate signal into loop. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KING PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	2072	DSB-305	TA-440	PRSA150-40-40	BRD4415	M2N511	Filter - Red
B	40	150					"	"	- Blue
C	25	25			TA-25	PRS25-25	BR252A	MC26	Cath. Bypass - Yellow
8	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
9	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.005	400		S-4-005	TC-25	484-005	DT6D5	TP408	Tone Compensation
12	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	Audio Coupling
13	.25	200		S-4-25	TC-2	484-.25	DT4P25	TP430	RF Bypass Pwr. Supp
14	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
15	.005	400		S-6-005	TC-22	484-005	DT6D5	TP408	Ant. Isolation
16	470	500		M0.5-35	1FM-35	1468-0005	5W5T5	MC245	Audio Plate Bypass
17	330	500		M0.5-33	1FM-33	1468-0003	5W5T3	MC241	IF Bypass Volume Cont.
18	47	500		M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
19	47	500		M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	RF Coupling

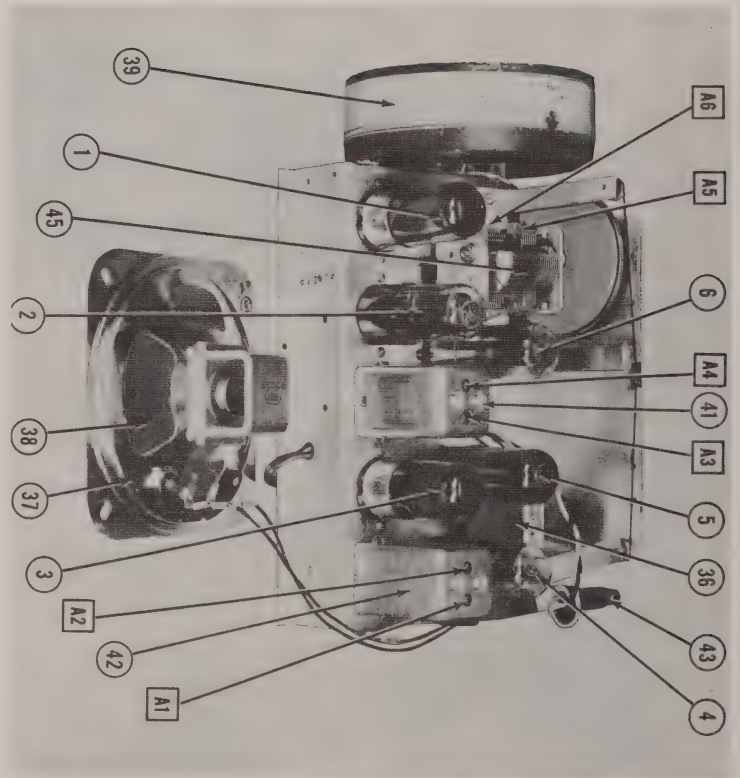
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1		MR48	D13-133	M-50-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " "
21A	500KΩ	1		MR50	D11-133	M-56-S	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 21A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
22	470Ω	½		BTS-470	Yl.-Vi.-Br. Antenna Loading
23	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
24	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
25	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
26	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
28	330KΩ	½		BTS-330K	Or.-Or.-Yl. AF Plate Load
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
30	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
31	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Series Phono
32	220KΩ	½		BTS-220K	Red-Red-Yl. Phono Shunt
33	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter
34	7000Ω	10		AB-7000	Bleeder
35	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
36	2500Ω	3.6Ω	160Ω	.8Ω	TA-200-447	A-3856	T2S845		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR KING PART No.	JENSEN PART No.		
37	FIELD PM	VC IMP. 3.6Ω	S525C-6	ST-105 Mod. P5-X		
38	CONE DIA. 5"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

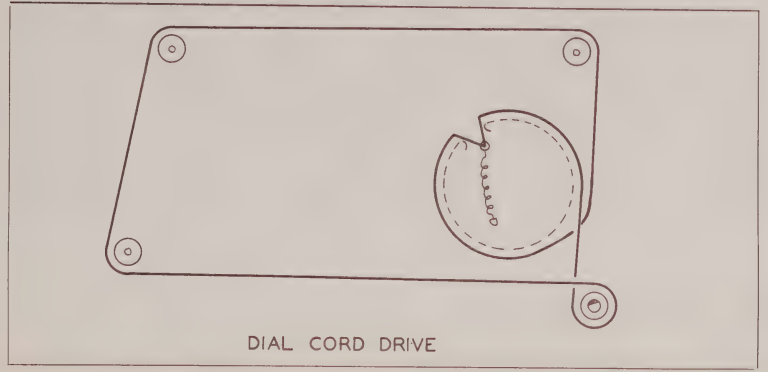
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR KING PART No.	MEISSNER PART No.	
39	Loop	.1Ω	1.2Ω			
40	Osc. Coil		3.5Ω		14-1040	
41	Input IF	20Ω	20Ω	3329	16-6658	
42	Output IF	18.7Ω	18.9Ω	3529	16-6660	

DIAL LIGHT

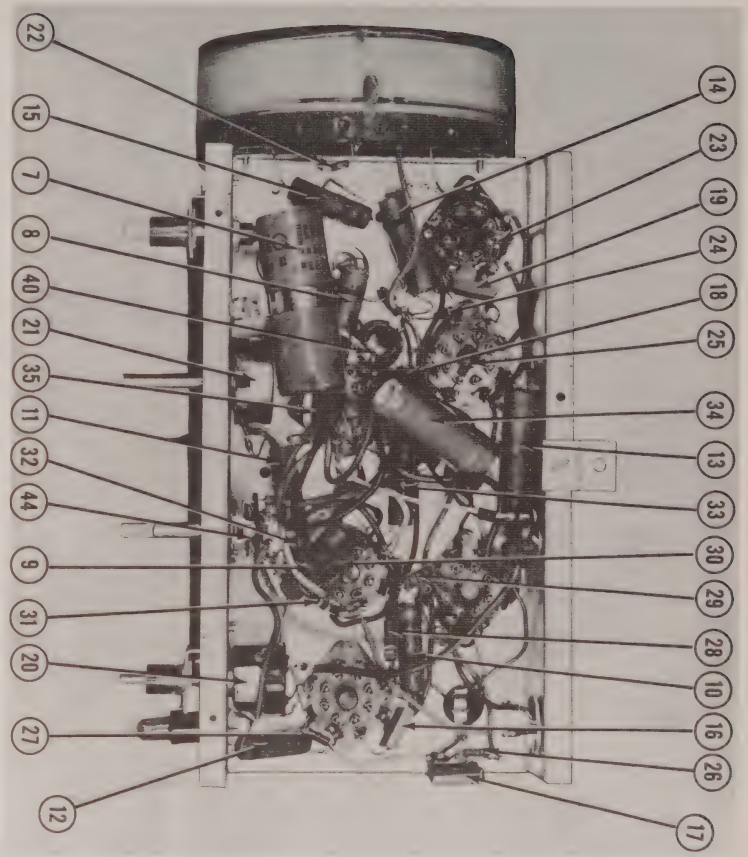
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR KING PART No.		
43	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

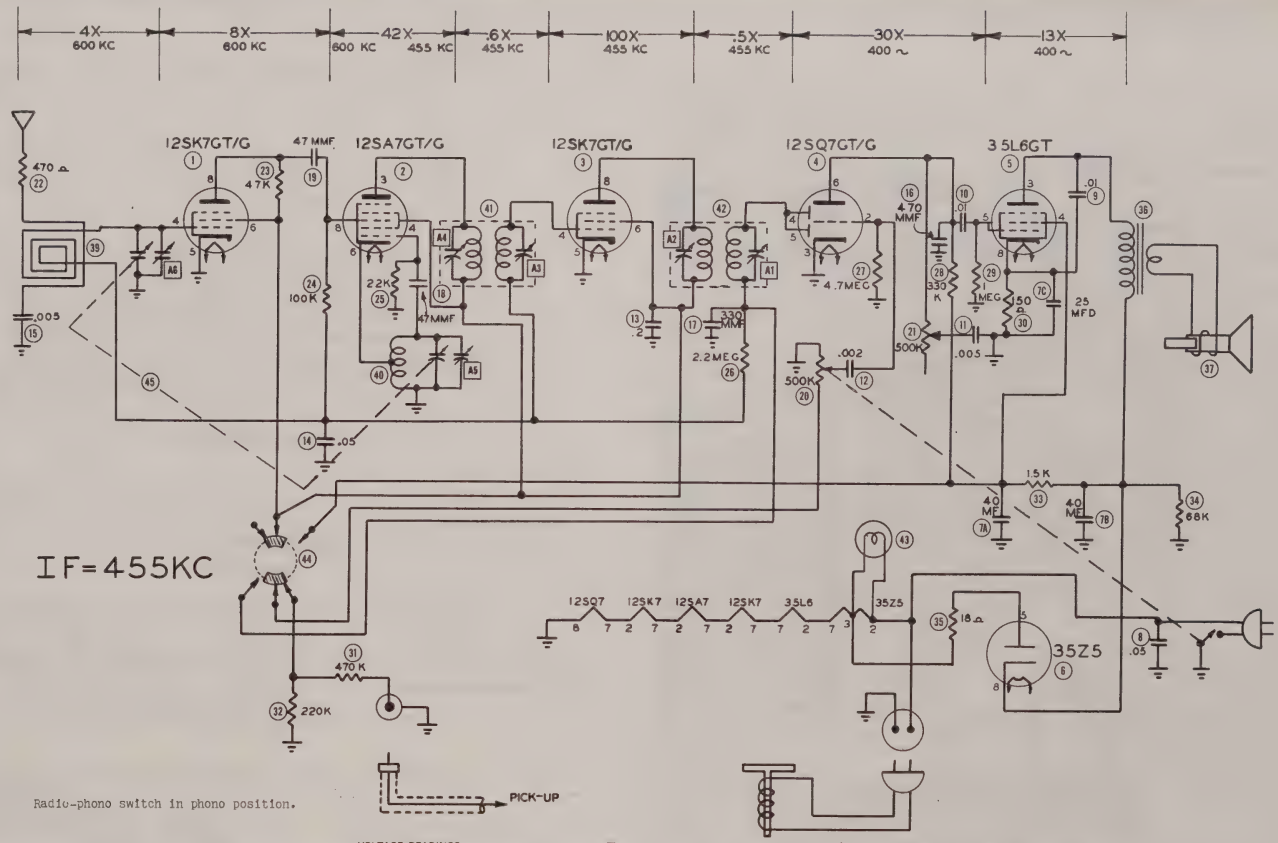
ITEM No.	PART NAME	AIR KING PART No.	NOTES
44	Radio-Phono Sw.		
45	2 Gang Var. Cap.		(29-192 MMF, 35-467 MMF)



CHASSIS—BOTTOM VIEW



AIR KING MODEL 4704



Radio-phono switch in phono position.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	47 V.AC	0V.	-9 V.DC	0V.	75 V.DC	37 V.AC	38 V.DC
2	12SA7GT	0V.	37 V.AC	75 V.DC	75 V.DC	-4 V.DC	0V.	25 V.AC	-6 V.DC
3	12SK7GT	0V.	13 V.AC	0V.	-9 V.DC	0V.	75 V.DC	25 V.AC	75 V.DC
4	12SQ7GT	0V.	-8 V.DC	0V.	-7 V.DC	-7 V.DC	43 V.DC	13 V.AC	0V.
5	35L6GT	0V.	86 V.AC	111 V.DC	75 V.DC	0V.	0V.	47 V.AC	41 V.DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	0V.	111 V.AC	117 V.AC	86 V.AC	116 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	44Ω	0Ω	2.2 MEG.	0Ω	8 KΩ	34Ω	12.7 KΩ
2	12SA7GT	0Ω	34Ω	8 KΩ	8 KΩ	19 KΩ	.3Ω	24Ω	2.3 MEG.
3	12SK7GT	0Ω	12Ω	0Ω	2.2 MEG.	0Ω	8 KΩ	24Ω	8 KΩ
4	12SQ7GT	0Ω	4.5 MEG.	0Ω	400 KΩ	400 KΩ	338 KΩ	12Ω	0Ω
5	35L6GT	0Ω	74Ω	6.5 KΩ	8 KΩ	960 KΩ	650 KΩ	44Ω	125Ω
6	35Z5GT	0Ω	98Ω	96Ω	INF.	112Ω	98Ω	74Ω	6.5 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AUTOMATIC
MODEL 620

AUTOMATIC
MODEL 620

AUTOMATIC MODEL 620

TRADE NAME	Automatic, Model 620
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-125 Volts AC-DC
TUNING RANGE—BROADCAST	538-1630KC RATING .235 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning shaft completely clockwise and set pointer to left edge of number 55. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 12SA7. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD to reduce hum modulation.
.1 MFD.	High side to ext. ant. lead. Low side to chassis.	"	Low freq. end of dial.	"	A5	Adjust for minimum output.
200 MMFD	"	1630KC	High freq. end of dial.	"	A6,A7.	Adjust for maximum output in order given.
200 MMFD	"	1400KC	Tune for maximum output.	"	A8	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	50	150		M-50-150	UT-501	PRS150-50	BR5015	TC49	Filter
8	30	150		M-30-150	UT-301	PRS150-30	BR3015	TC47	"
9	.05	600		S-6-05	TC-15	684-05	DT6S5	TP415	Line Filter
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
11	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
12	.002	600		S-6-002	TC-22	684-002	DT6P2	TP405	" "
13	.1	200		S-4-1	TC-1	484-.1	DT4P1	TP428	AVC Filter
14	200	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Plate Bypass
15	500	500		MO.5-35	1FM-35	1468-0005	5W5T5	MC245	IF Bypass Diode
16	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
17	500	500		MO.5-35	1FM-35	1468-0005	5W5T5	MC245	RF Coupling

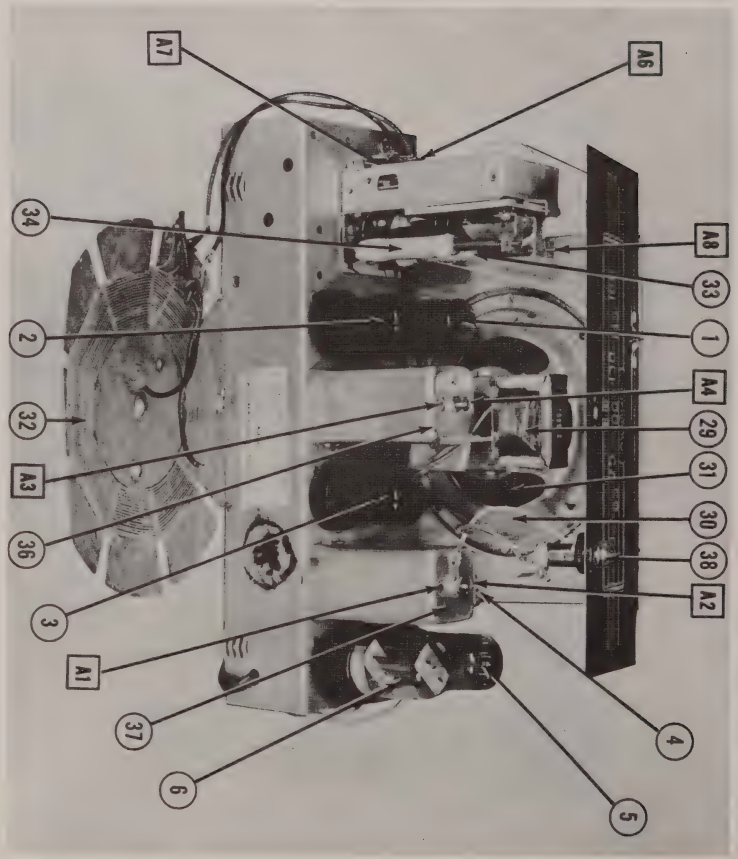
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	250KΩ	1	RV-46	MR44	D13-130	M-64-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	M28	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
19	4000Ω	1		BTA-3900	Yl.-Blk.-Red RF Plate Load
20	390KΩ	½		BTS-390K	Or.-White-Yl. Converter Grid
21	20KΩ	½		BTS-22K2	Red-Blk.-Or. Oscillator Grid
22	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
23	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
24	200KΩ	½		BTS-220K	Red-Blk.-Yl. 1st AF Plate Load
25	390KΩ	½		BTS-390K	Or.-White-Yl. Output Grid
26	390KΩ	½		BTS-390K	Or.-White-Yl. " "
27	150Ω	1		BW-1-150	Br.-Grn.-Br. Bias
28	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AUTOMATIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
29	2000Ω	3.3Ω	125Ω	.45Ω	Part of PM-601	A-3876*	T22845*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

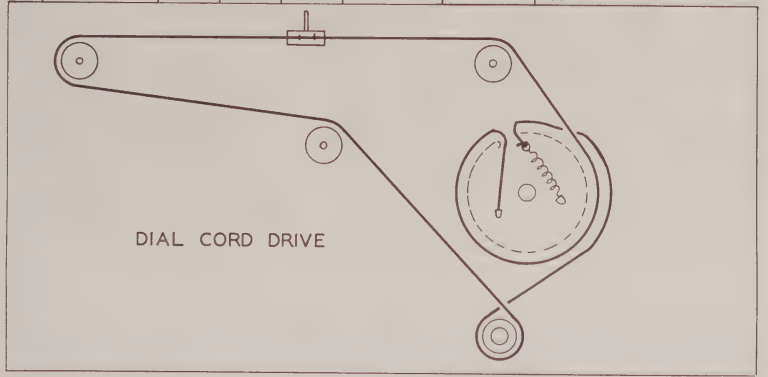
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AUTOMATIC PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-106		
30	PM	3.3Ω	PM-601	Mod. P5-W		
	CONE DIA.	VC DIA.				
31	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

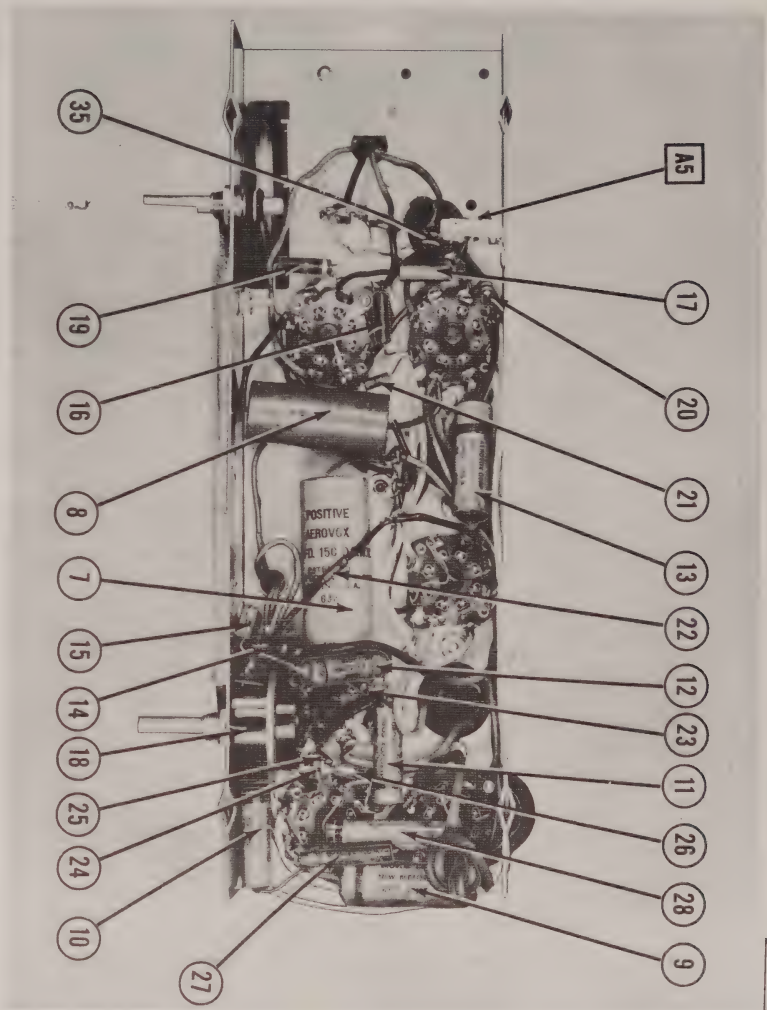
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
32	Loop	0Ω	1Ω			
33	RF Coil		21Ω			
34	Osc. Coil	.5Ω	3.5Ω			
35	Wave Trap		44Ω			
36	Input IF	17Ω	17.5Ω	16-6658		
37	Output IF	17Ω	18Ω	16-6660		

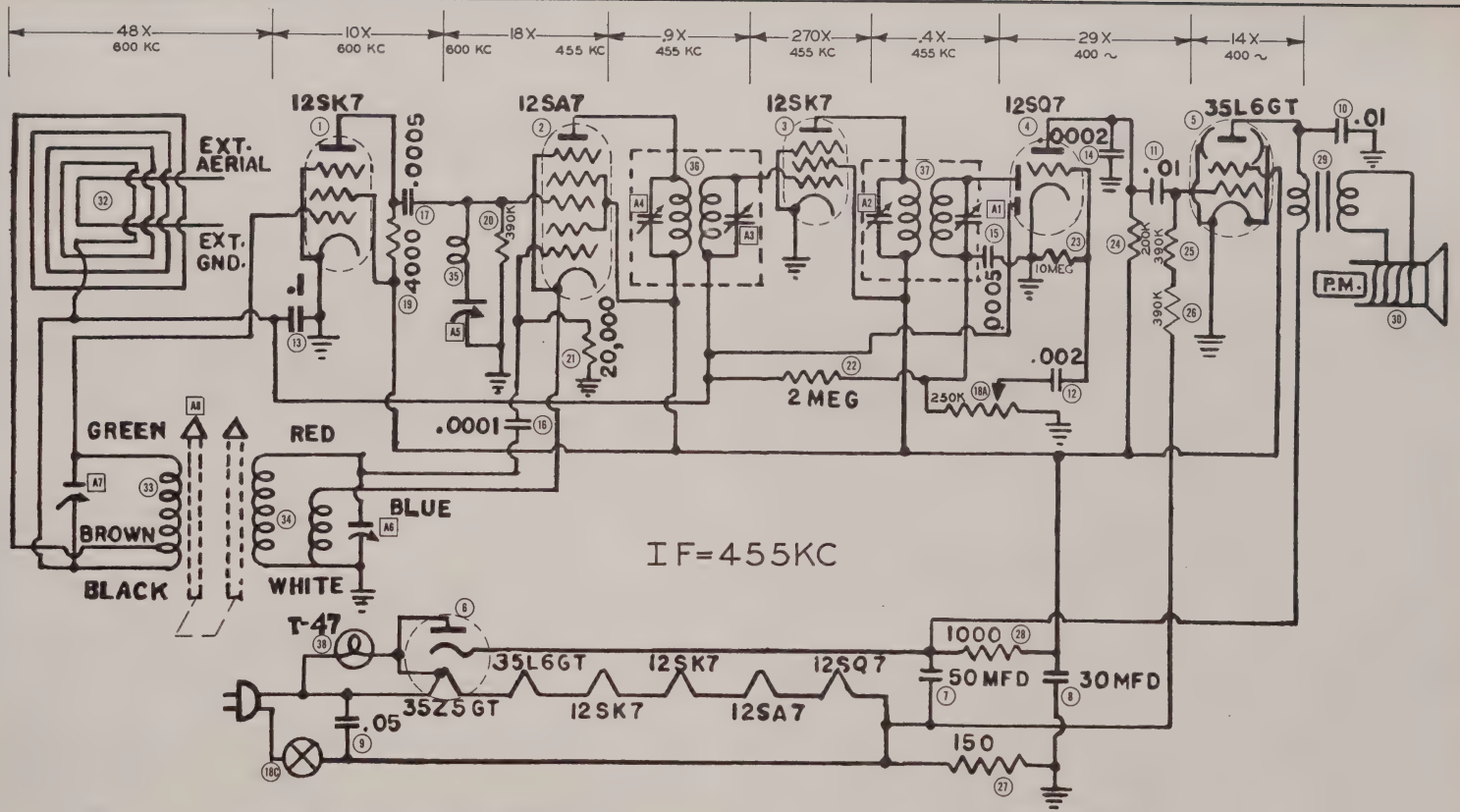
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AUTOMATIC PART No.		
38	Bayonet	6-8	0.15	Brown			Type 47



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	38 V.AC	0V.	−.4 V.DC	0V.	90 V.DC	26 V.AC	57 V.DC
2	12SA7	0V.	51 V.AC	90 V.DC	90 V.DC	−7.2 V.DC	0V.	38 V.AC	−.9 V.DC
3	12SK7	0V.	26 V.AC	0V.	−.9 V.DC	0V.	90 V.DC	14 V.AC	90 V.DC
4	12SQ7	0V.	−.7 V.DC	0V.	−.9 V.DC	−.3 V.DC	67 V.DC	8.6 V.AC	14 V.AC
5	35L6GT	0V.	87 V.AC	121 V.DC	90 V.DC	−2.6 V.DC	−8.4 V.DC	51 V.AC	0V.
6	35Z5GT	0V.	117 V.AC	113 V.AC	0V.	113 V.AC	8.6 V.AC	87 V.AC	125 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0Ω	170Ω	0Ω	2.4 MEG.	0Ω	35 KΩ	155Ω	39 KΩ
2	12SA7	0Ω	180Ω	35 KΩ	35 KΩ	170 KΩ	.5Ω	170Ω	380 KΩ
3	12SK7	0Ω	155Ω	0Ω	2.4 MEG.	0Ω	35 KΩ	145Ω	35 KΩ
4	12SQ7	0Ω	9 MEG.	0Ω	2.4 MEG.	225 KΩ	235 KΩ	135Ω	145Ω
5	35L6GT	0Ω	210Ω	35 KΩ	35 KΩ	700 KΩ	135Ω	180Ω	0Ω
6	35Z5GT	INF.	250Ω	248Ω	INF.	248Ω	135Ω	210Ω	35 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

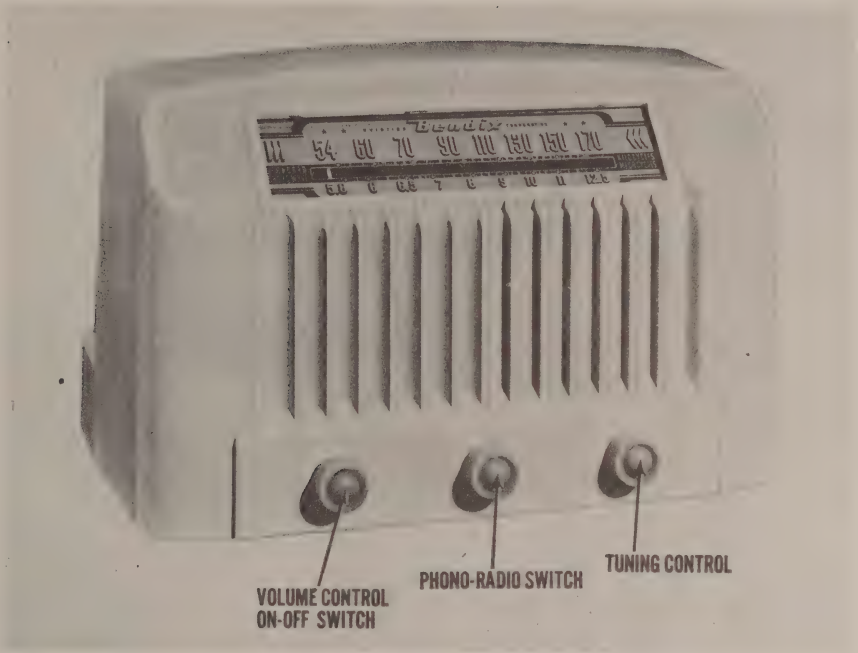
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

BENDIX
MODEL 626-A (0626A)



BENDIX
MODEL 626-A (0626A)

BENDIX MODEL 626-A (0626A)

TRADE NAME	Bendix Model 626-A (0626A)
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Md.
TYPE SET	AC-DC Operated Two Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .235 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1725KC — **SHORT WAVE** 5.7-12.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer 2-3/16" from left end of dial backplate. Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #6 (signal grid) of 14Q7. Low side to B-.	455KC	BC	High freq. end. (Variable fully open)	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMF	High side to ext. ant. Low side to chassis.	1725KC	"	"	"	A5	Adjust for maximum output
200 MMF	"	1500KC	"	Tune for maximum output.	"	A6,A7.	" " " "
400 ohms	"	12.5MC	SW	High freq. end.	"	A8	" " " "
400 ohms	"	11.0MC	"	Tune for maximum output	"	A9	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
1	RF Amp.	14A7	14A7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A5	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	BENDIX PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
7A	40	150	CE3A00	DY-604020-150	EL-224	AF544D	UP6CJ44		▲ Filter
B	20	150							"
C	60	150			TA-220†	PRS150-40			" "
8	.1	400	CP4T51	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Isolation
9	.05	400	CP4T40	S-4-05	TC-15	484-05	DT4S5	TP426	Rect. Bypass
10	.02	400	CP4T34	S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
11	.1	200	CP4T51	S-4-1	TC-1	484-.1	DT4P1	TP428	Tone Compensation
12	.05	400	CP4T40	S-4-05	TC-15	484-05	DT4S5	TP426	" "
13	.05	400	CP4T40	S-4-05	TC-15	484-05	DT4S5	TP426	Audio Coupling
14	.006	400	CP4T20	S-6-006	TC-26	484-006	DT6D6	TP409	" "
15	.006	400	CP4T20	S-6-006	TC-26	484-006	DT6D6	TP409	" "
16	.05	400	CP4T40	S-4-05	TC-15	484-05	DT4S5	TP426	IF Screen Bypass
17	.1	400	CP4T51	S-4-1	TC-1	484-.1	DT4P1	TP428	Phono Bypass
18	.05	400	CP4T40	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
19	220	500	CM5A30	MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Plate Bypass
20	47	500	CM5A14	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
21	470	500	CM8S50	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	RF Coupling
22	3.3		CC9A16						" " Cer.
23	47	500	CM5A14	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	RF Pri. Shunt
24	220	500	CM5A30	MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Loop Pri. Shunt
25	470	500	CM5A38	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Ant. Coupling

†Parallel with EL type to obtain desired capacity.

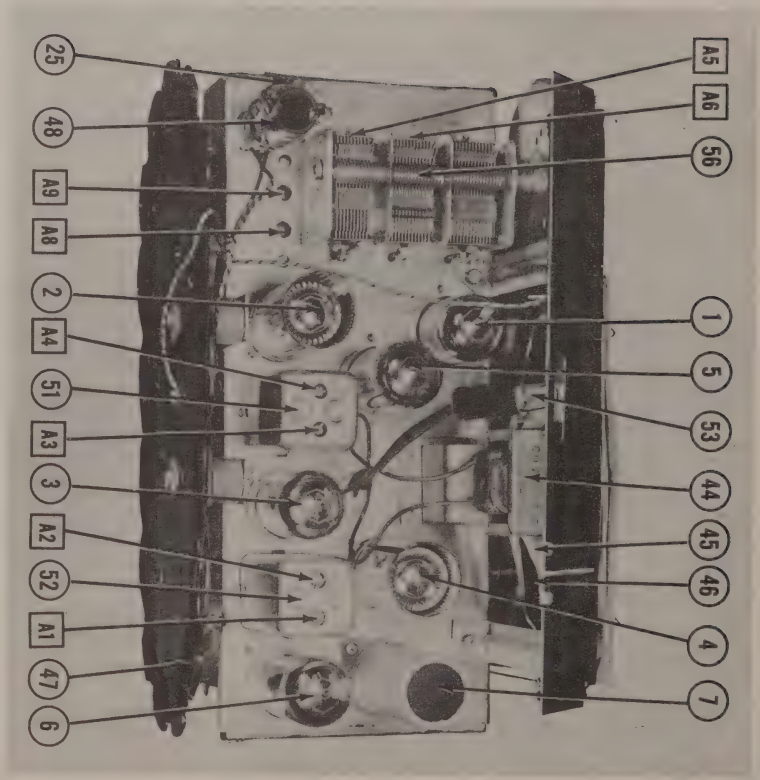
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
26A	1 Meg.	1	RV4S00		D17-137X	T-101	Volume Control
B	Shaft		Not Req.		A	Not Req.	Attach to 26A per instructions
C	Switch		" "		41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	BENDIX PART No.	IRC PART No.	
27	220Ω	½	RC1H16	BW-½-220	Red-Red-Br. RF Cathode
28	22KΩ	½	RC1H40	BTS-22K	Red-Red-Or. Oscillator Grid
29	470Ω	½	RC1H20	BTS-470	Yl.-Vi.-Br. Decoupling
30	3.3 Meg.	½	RC1H68	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
31	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. 1st AF Plate Load
32	4.7 Meg.	½	RC1H70	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
33	470KΩ	½	RC1H58	BTS-470K	Yl.-Vi.-Yl. Diode Load
34	22KΩ	½	RC1H40	BTS-22K	Red-Red-Or. Tone Compensation
35	100KΩ	½	RC1H51	BTS-100K	Br.-Blk.-Yl. " "
36	15KΩ	½	RC1H38	BTS-15K	Br.-Grn.-Or. " "
37	6800Ω	½	RC1H34	BTS-6800	Blue-Gray-Red Tone Compensation
38	470KΩ	½	RC1H58	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	150Ω	1	RW1B28	BW-1-150	Br.-Grn.-Br. Output Cathode
40	4700Ω	½	RC1H32	BTS-4700	Yl.-Vi.-Red Filter
41	2200Ω	1	RC4G28	BTA-2200	Red-Red-Red "
42	33Ω	1	RW1A06	BW-1-33	Or.-Or.-Blk. Surge Limiter
43	220KΩ	½	RC1H54	BTS-220K	Red-Red-Yl. Line Isolating

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BENDIX	STANCOR	THORDAR'N		
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.		
44	2300Ω	3.1Ω	170Ω	.4Ω	TA0001	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA				INSTALLATION NOTES
			BENDIX PART No.	JENSEN PART No.			
	FIELD	VC IMP.					
45	PM	3.1Ω	SR400				
	CONE DIA.	VC DIA.					
46	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.				
			CS4000	Cone and Voice Ass'y.		(Code 252)	
			CS4001	" "	" "	(" 328)	
			CS4002	" "	" "	(" 270)	
			CS4006	" "	" "	(" 191)	
			CS4007	" "	" "	(" 371)	

R F COILS

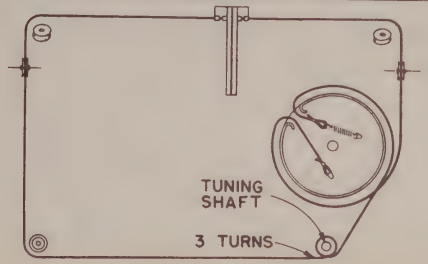
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	BENDIX PART No.	MEISSNER PART No.	
47	Loop Ant.	22Ω	6Ω	AL0C01		
48	SW Ant. Coil	0Ω	0Ω	TR6D00	14-1044	
49	BC RF Coil			TR6L00	14-1027	
50A	BC Osc. Coil	.5Ω	5.8Ω	L06H00		Items 50A, 50B wound same form
B	SW Osc. Coil	.5Ω	.2Ω			
51	Input IF	22Ω	22Ω	TI0C01	16-6658	
52	Output IF	22Ω		TI0D01	16-6670	

DIAL LIGHT

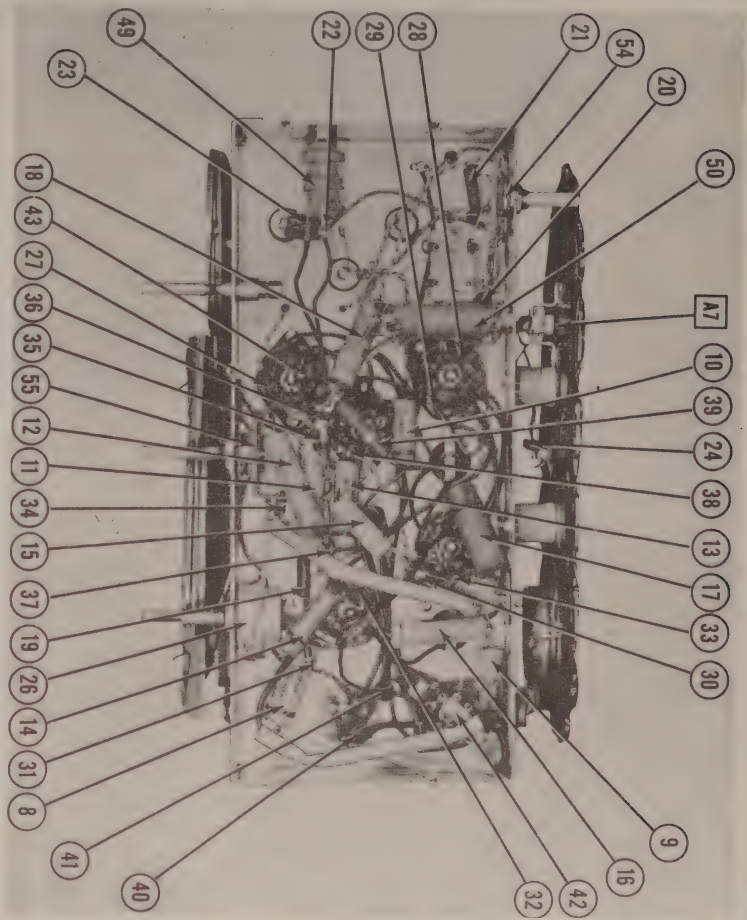
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					BENDIX PART No.		
53	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

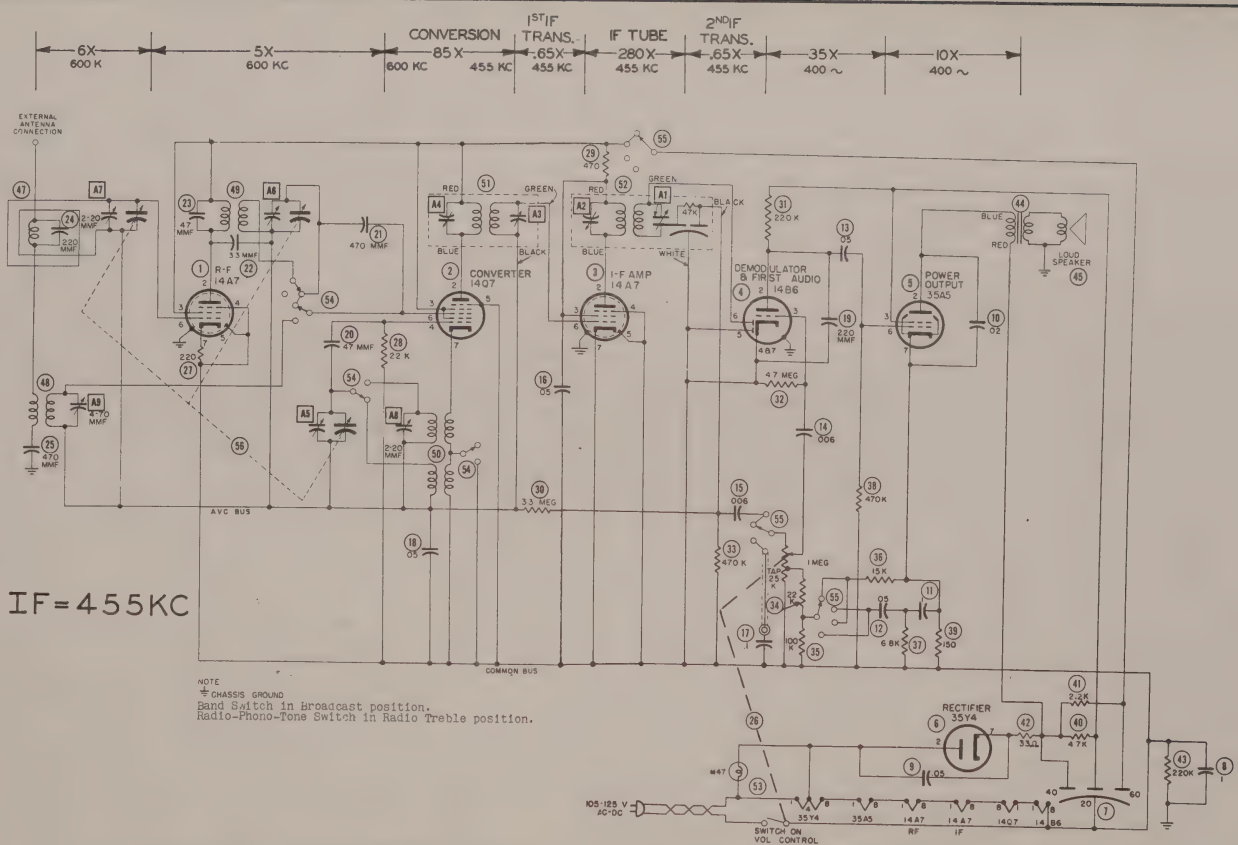
ITEM No.	PART NAME	BENDIX PART No.	NOTES
54	Band Switch	SR2C01	Rotary 2 Pos. 3 Pole
55	Radio-Phono Sw.	SR4C00	Rotary 4 Pos.3 Pole
56	3 Gang Var. Cap.	CV0C00	Trimmers A5 & A6 Incl.
A7	Trimmer		2-20 MMF (Loop Ant. Adj.)
A8	Dual Trimmer	CT2A00	2-20 MMF (Sw. Osc. Adj.)
A9			4-70 MMF (Sw. Ant. Adj.)
	Indicator	ID0M06	
	Dial Scale	DS0C01	
	Knob	KB0B03	Indexed, Tan
	"	KC0B08	Plain, Tan
	"	KY0B00	Bandswitch, Brown
	Cabinet	ZP0I00	Ivory, Plastic



CHASSIS—BOTTOM VIEW



BENDIX MODEL 626-A



NOTE
⏚ CHASSIS GROUND
Band Switch in Broadcast position.
Radio-Phono-Tone Switch in Radio Treble position.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	50 V.AC	65 V.DC	65 V.DC	0 V.	0 V.	-.35 V.DC	1.2 V.DC	38 V.AC
2	14Q7	13.5 V.AC	65 V.DC	65 V.DC	-3.2 V.DC	0 V.	-.35 V.DC	0 V.	26 V.AC
3	14A7	26 V.AC	62 V.DC	62 V.DC	0 V.	0 V.	-.35 V.DC	0 V.	38 V.AC
4	14B6	13.5 V.AC	67 V.DC	-.65 V.DC	0 V.	-.65 V.DC	0 V.	0 V.	0 V.
5	35A5	87 V.AC	102 V.DC	97 V.DC	0 V.	0 V.	0 V.	5.8 V.DC	50 V.AC
6	35Y4	117 V.AC	113 V.AC	108 V.DC	113 V.AC	0 V.	0 V.	110 V. DC	87 V.AC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	45Ω	100KΩ	100KΩ	0Ω	0Ω	3.9MEG.	220Ω	34Ω
2	14Q7	12Ω	100KΩ	100KΩ	22KΩ	0Ω	3.9MEG.	1Ω	23Ω
3	14A7	23Ω	100KΩ	100KΩ	0Ω	0Ω	3.9MEG.	0Ω	34Ω
4	14B6	12Ω	320KΩ	4.5MEG.	0Ω	510KΩ	0Ω	0Ω	0Ω
5	35A5	75Ω	100KΩ	100KΩ	0Ω	0Ω	430KΩ	135Ω	45Ω
6	35Y4	100Ω	98Ω	100KΩ	98Ω	INF.	INF.	100KΩ	75Ω

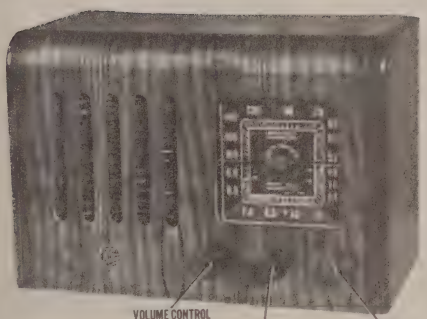
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-4

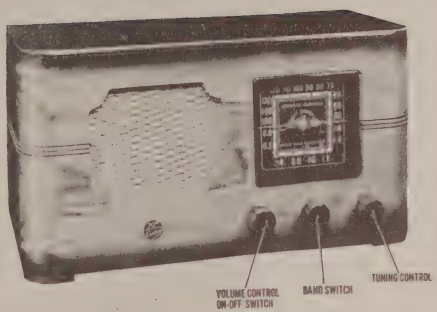
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

20TH CENTURY
MODELS 100X, 101, 104



MODEL 100 X



MODEL 101

20TH CENTURY
MODELS 100X, 101, 104

TRADE NAME	20th Century, Models 100X, 101, 104
MANUFACTURER	Electronic Devices Co., 601 W. 26th St., New York, N.Y.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SA7 Converter, 12SK7 1st IF Amp., 12SK7 2nd IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier or Lock-In Type Equivalents.
POWER SUPPLY	110-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1640KC
RATING	260 Amp. @ 117 Volts AC
SHORT WAVE	5.8-16.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn to low frequency end and set pointer parallel to horizontal line on dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	456KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1400KC	"	1400KC	"	A5	Use a loop fashioned with 3 or 4 turns of wire and radiate signal into set. Adjust for maximum output.
	"	"	"	Tune for maximum output.	"	A6	"
400 ohms	High side to ext. ant. lead. Low side to chassis.	14MC	SW	14MC	"	A7	Adjust for maximum output
400 ohms	"	"	"	Tune for maximum output.	"	A8	Rock variable and adjust for maximum output. Recheck A5 at 1400KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: 20th CENTURY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Converter	12SA7	12SA7	8R	Octal Type
B	Converter	14Q7	14Q7	8AL	Lock-in Type
2A	1st IF Amp.	12SK7GT	12SK7GT	8N	Some models use 12SJ7 for 1st IF Amp.
B	1st IF Amp.	14A7	14A7	8V	
3A	2nd IF Amp.	12SK7GT	12SK7GT	8N	
B	2nd IF Amp.	14A7	14A7	8V	
4A	Det.-AVC-AF	12SQ7	12SQ7	8Q	
B	Det.-AVC-AF	14B6	14B6	8W	
5A	Power Output	35L6GT	35L6GT	7AC	
B	Power Output	35A5	35A5	6AA	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: 20th CENT. PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		M-2x40-150	TA-440	PRSA150-40-40	BRD4415	2N511	Filter - Red
B	40	150							" - "
8C	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Line Filter
9	.03	400		S-6-03	TC-13	484-03	DT4S3	TP424	35L6 Plate Bypass
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	" "
12	.1	200		S-4-1	TC-1	484-.1	DT4P1	TP428	AVC Filter
13	.25	200		S-4-25	TC-2	484-.25	DT4P25	TP430	RF Bypass Pwr. Supp.
14	.25	200		S-4-25	TC-2	484-.25	DT4P25	TP430	Line Isolation
15	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	Audio Plate Decoup.
16	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Line Isolation
17	200	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Plate Bypass
18	200	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	IF Bypass Vol. Cont.
19	50	500		MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
20	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Coupling
21	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Conv. Plate Bypass

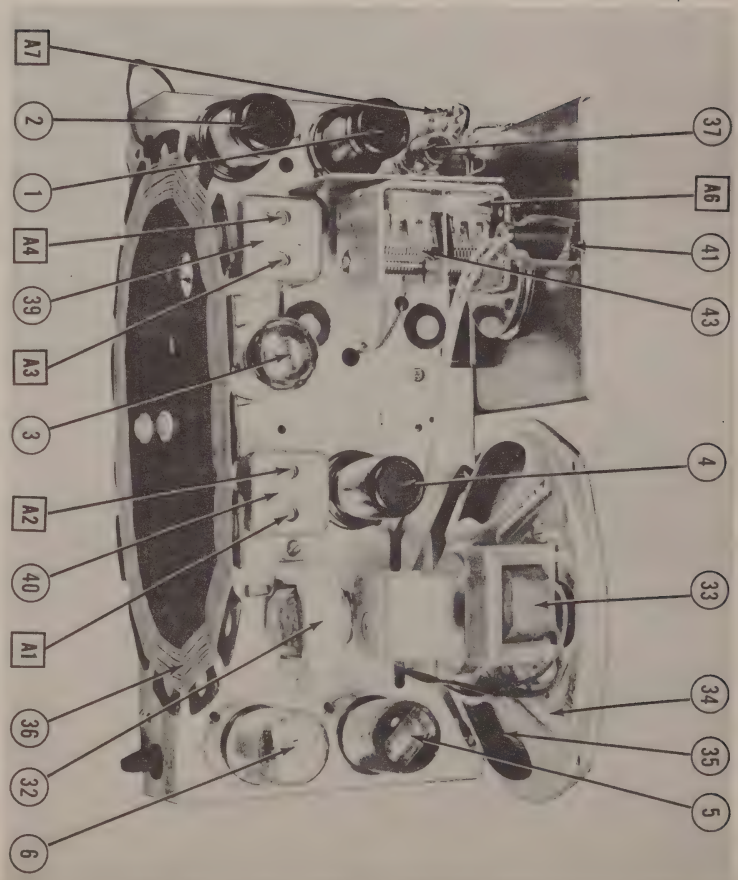
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENT. PART No.	IRC PART No.	IDENTIFICATION CODES
23	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
24	22KΩ	1		BTS-22K	Red-Red-Or. Converter Plate Load
25	150KΩ	½		BTS-150K	Br.-Grn.-Yl. 1st IF Grid
26	3 Meg.	½		BTS-3.3 Meg	Or.-Blk.-Grn. AVC Network
27	3 Meg.	½		BTS-3.3 Meg	Or.-Blk.-Grn. 1st AF Grid
28	240KΩ	½		BTS-220K	Red-Yl.-Yl. 1st AF Plate Load
29	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Filter
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
31	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: 20th CENTURY PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
32	64 MA	285Ω	4.7 Henries		C-1709*	T20C53*	*Drill one new mounting hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: 20th CENT. PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
33	2200Ω	3.2Ω	90Ω	.55Ω		A-3876	T22S45		.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: 20th CENTURY PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
34	FIELD AC	VC IMP. 3.2Ω		ST-109 Mod. P6-W		
35	CONE DIA. 6"	VC DIA. ½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

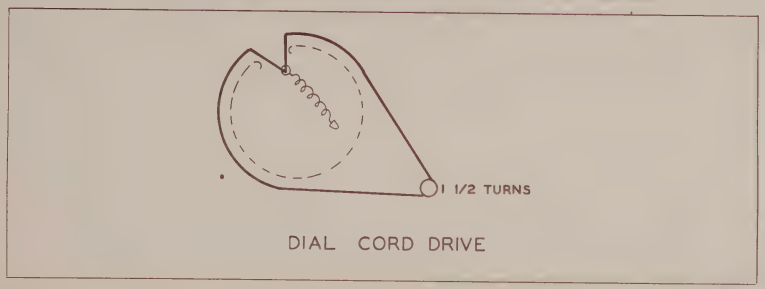
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: 20th CENTURY PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
36	Loop Ant.		1.5Ω			
37	SW Ant.Coil	.3Ω	.2Ω		14-1044	
38A	BC Osc.Coil	.5Ω	7Ω			Items 38A, 38B wound on same form
B	SW " "	.2Ω	.2Ω			
39	Input IF	19Ω	20.3Ω	2010C	16-6658	
40	Output IF	29Ω	29Ω	2011C	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: 20th CENTURY PART No.		INSTALLATION NOTES
41	Bayonet	6-8	0.15	Brown			Type 47

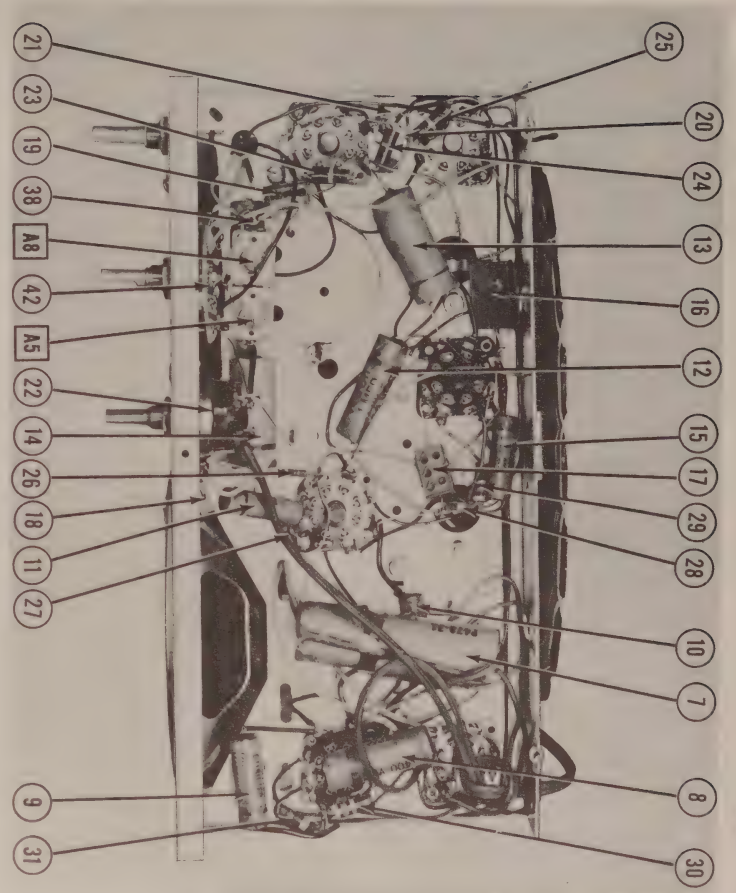
MISCELLANEOUS

ITEM No.	PART NAME	20th CENTURY PART No.	NOTES
42	Bandswitch		
43	Tuning Gang		(16-443 MMF, 9-145 MMF)

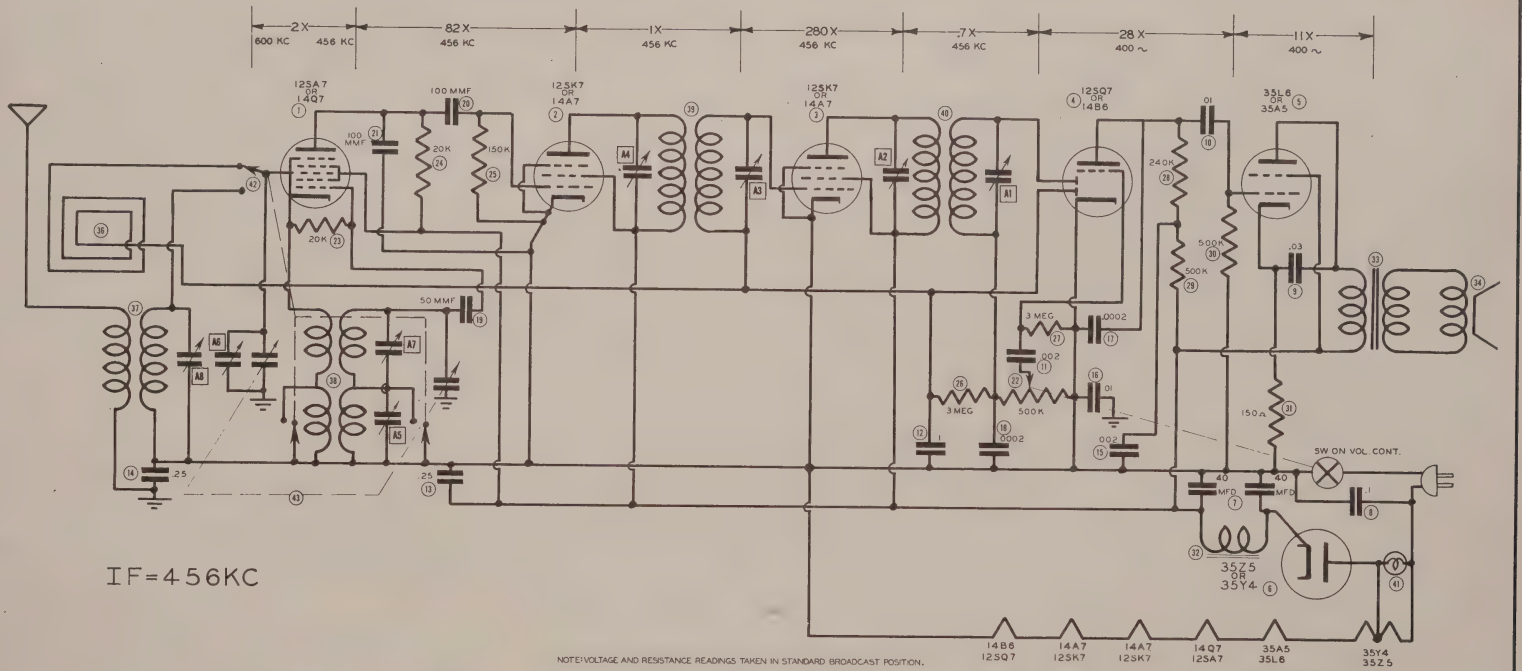


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



20th CENTURY MODELS 100X, 101, 104



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7/14Q7	0V.	53 V.AC	45 V.DC	98 V.DC	-3.2 V.DC	0V.	39 V.AC	-55 V.DC
2	12SK7/14A7	0V.	39 V.AC	0V.	-125 V.DC	0V.	98 V.DC	26 V.AC	98 V.DC
3	12SK7GT/14A7	0V.	26 V.AC	0V.	-55 V.DC	0V.	98 V.DC	13 V.AC	98 V.DC
4	12SQ7/14B6	0V.	-57 V.DC	0V.	-55 V.DC	-3 V.DC	43 V.DC	13 V.AC	0V.
5	35L6GT/35A5	0V.	53 V.AC	95 V.DC	98 V.DC	0V.	0V.	87 V.AC	5.8 V.DC
6	35Z5GT/35Y4	0V.	117 V.AC	113 V.AC	0V.	113 V.AC	0V.	87 V.AC	117 V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7/14Q7	INF.	46Ω	65KΩ	45KΩ	18.5KΩ	.5Ω	34Ω	3.2MEG.
2	12SK7/14A7	INF.	34Ω	0Ω	132KΩ	0Ω	45KΩ	23Ω	45KΩ
3	12SK7GT/14A7	INF.	23Ω	0Ω	3.2MEG.	0Ω	45KΩ	12Ω	45KΩ
4	12SQ7/14B6	INF.	2.9MEG.	0Ω	3.2MEG.	510KΩ	660KΩ	12Ω	0Ω
5	35L6GT/35A5	0Ω	46Ω	45KΩ	45KΩ	365KΩ	INF.	75Ω	140Ω
6	35Z5GT/35Y4	INF.	100Ω	97Ω	INF.	97Ω	INF.	75Ω	45KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

CLARK
MODEL PA-10

CLARK
MODEL PA-10

CLARK AMPLIFIER MODEL PA-10

TRADE NAME	Clark Amplifier, Model PA-10
MANUFACTURER	Clark Radio Equipment Corp., 4313 N. Lincoln Ave., Chicago 18, Illinois
TYPE SET	AC Operated Audio Amplifier
TUBES (FIVE)	Types 7F7 Audio Amp., 7F7 Audio Amp.-Phase Inverter, (2) 6V6GT Power Output 5Y3GT Rectifier
POWER SUPPLY	117 Volts AC RATING .700 Amps. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	3.3V.AC	2V.DC	117V.DC	0V.	.3V.DC	122V.DC	2V.DC	3.3V.AC
2	7F7	3.3V.AC	1.8V.DC	138V.DC	0V.	0V.	132V.DC	2V.DC	3.3V.AC
3	6V6GT	0V.	3.3V.AC	340V.DC	345V.DC	0V.	0V.	3.3V.AC	22V.DC
4	6V6GT	0V.	3.3V.AC	340V.DC	345V.DC	0V.	0V.	3.3V.AC	22V.DC
5	5Y3GT	0V.	345V.DC	0V.	315V.AC	0V.	315V.AC	0V.	345V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	∞	2.2KΩ	160KΩ	1.1MEG.	250KΩ	160KΩ	2.2KΩ	∞
2	7F7	∞	2.2KΩ	120KΩ	200KΩ	90KΩ	120KΩ	2.2KΩ	∞
3	6V6GT	INF.	∞	10KΩ	10KΩ	290KΩ	INF.	∞	235Ω
4	6V6GT	INF.	∞	10KΩ	10KΩ	300KΩ	INF.	∞	235Ω
5	5Y3GT	INF.	10KΩ	INF.	92Ω	INF.	85Ω	INF.	10KΩ

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CLARK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Audio Amp.	7F7	7F7	8AC	
2	Audio-Amp.Ph.Inv.	7F7	7F7	8AC	
3	Power Output	6V6GT	6V6GT	7AC	
4	Power Output	6V6GT	6V6GT	7AC	
5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CLARK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	20	350		DY-312	EL-212	AF32K4A	UP4CJ5	FP330	■ Filter
B	10	300							▲ "
C	20	25							Cath. Bypass
7A	10	400		DY-310	EL-102	AF32K4A	UP4CJ5	FP332	■ Filter
B	10	350							▲ "
C	20	25							Cath. Bypass
8	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Audio Coupling
9	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	" "
10	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	" "
11	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	Tone Compensation
12	.02	400		S-4-02	TC-12	484-02	LT4S2	TP423	Audio Coup.

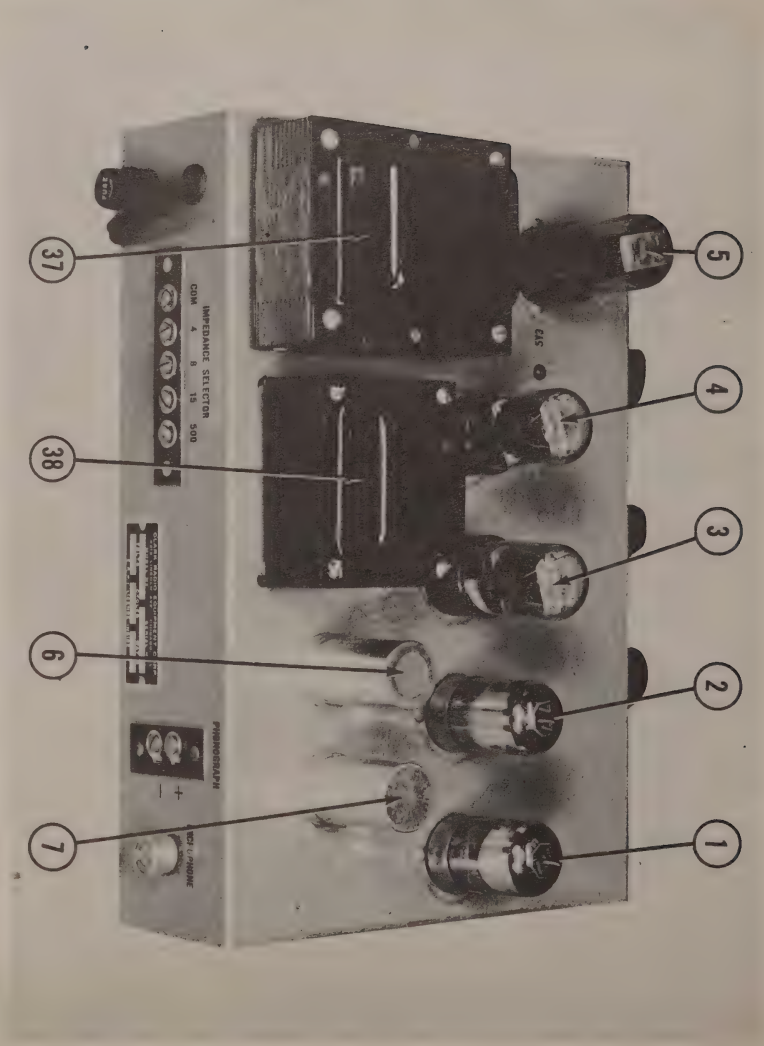
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	500KΩ	1		MR48	D13-133	M-60-Z	Mike Volume Control.
B	Shaft			Not Req.	A	Not Req.	Attach to 13A per instructions
14A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Volume Control.
B	Shaft			Not Req.	A	Not Req.	Attach to 14A per instructions.
15A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control.
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARK PART No.	IRC PART No.	IDENTIFICATION CODES
16	1.2 Meg.	½		BTS-1.2 Meg.	Br.-Red-Grn. Pre. Amp. Grid
17	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " " Plate Load
18	2700Ω	½		BTS-2700	Red-Vi.-Red " " Cathode
19	220KΩ	½		BTS-220K	Red_Red-Yl. Grid Decoupling
20	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st Audio Plate Load
21	510KΩ	½		BTS-470K	Grn.-Br.-Yl. Grid Decoupling.
22	10KΩ	½		BTS-10K	Br.-Blk.-Or. Pre-Amp. Plate Decoupling
23	220KΩ	½		BTS-220K	Red-Red-Yl. Driver Grid
24	2700Ω	½		BTS-2700	Red-Vi.-Red " Cathode
25	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " Plate Load
26	2700Ω	½		BTS-2700	Red-Vi.-Red Phase Inverter Cathode
27	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " " Plate Load
28	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " " Grid
29	51KΩ	½		BTS-47K	Grn.Br.-Or. Voltage Dropping
30	220KΩ	½		BTS-220K	Red-Red-Yl. Feedback
31	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
32	220KΩ	½		BTS-220K	Red-Red-Yl. " "
33	250Ω	10		AB-250	Output Cathode
34	51KΩ	½		BTS-47K	Grn.-Br.-Or. Voltage Dropping
35	20KΩ	10		AB-20,000	Bleeder
36	220KΩ	½		BTS-220K	Red-Red-Yl. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CLARK PART No.	STANCOR PART No.	THORDARSON PART No.	
37	117V AC @ 7A	630V AC @ 105A	5.1V AC @ 1.8A	6.6V AC @ 1.6A		P-6013	T22R05	

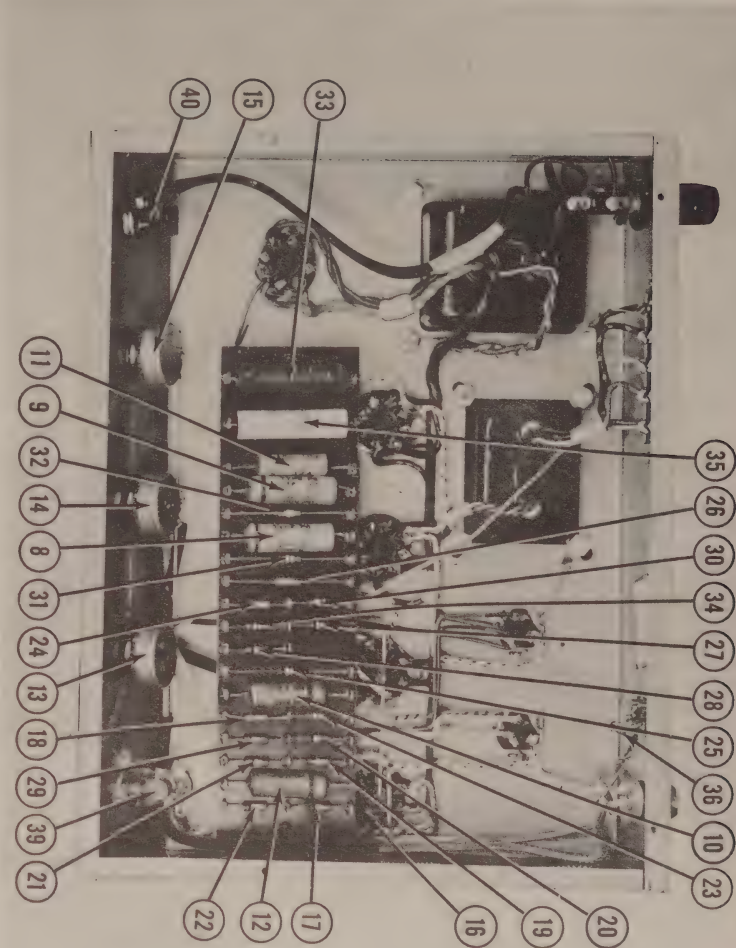
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CLARK PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	8500 CT	4Ω 8Ω 15Ω 500Ω	270Ω CT	.3Ω .4Ω .6Ω 25Ω		A-3304*	T22S66*		* Drill new mounting holes.

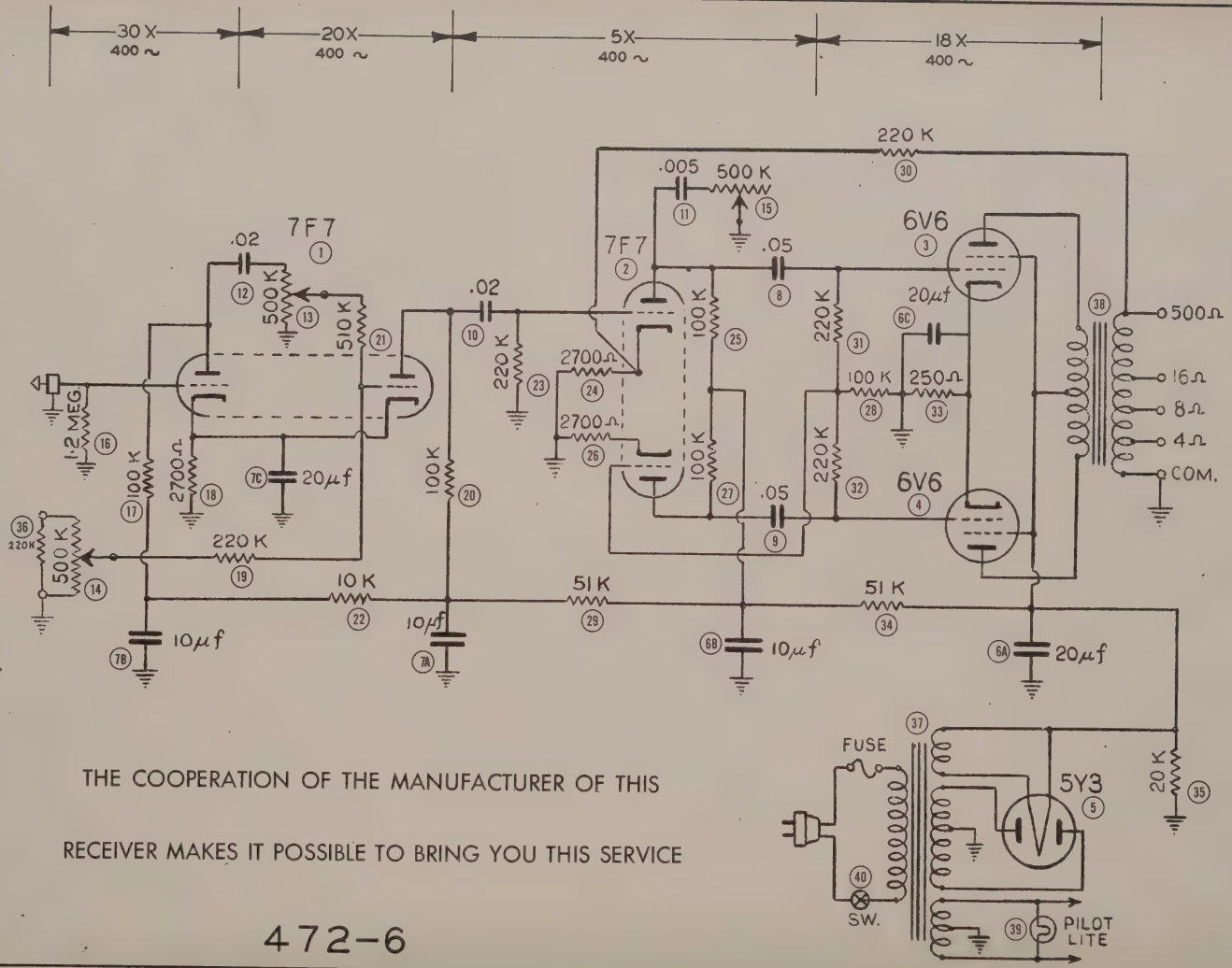
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CLARK PART No.		
39	Bayonet	6-8	0.15	Brown			Type 47

CHASSIS—BOTTOM VIEW



CLARK MODEL PA-10

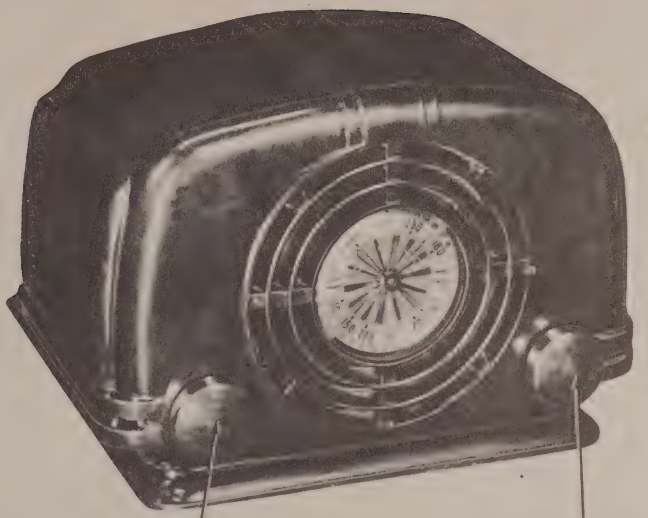


THE COOPERATION OF THE MANUFACTURER OF THIS

RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

472-6

CORONADO
MODEL 43-8160



CORONADO
MODEL 43-8160

CORONALO MODEL 43-8160

TRADE NAME	Coronado, Model 43-8160
MANUFACTURER	"Coronado"- Minneapolis, Minn. - Los Angeles, Calif.
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types 12SA7 Converter, 12SK7 IF Amp, 12SQ7 Det.-AVC-AF, 50L6GT Power Output 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC RATING .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	537-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning control fully counter clockwise and adjust pointer to last reference mark on low frequency end of dial. When aligning, ant. plate should be attached to back of chassis as when in cabinet. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to ext. ant. clip. Low side to B-.	455KC	Iron Cores completely out.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
200 MMFD	"	"	"	"	A6	"
200 MMFD	"	1400KC	Tune for maximum output.	"	Ant. Coil (#32)	Adjust position of coil for maximum output.
200 MMFD	"	1720KC	1720KC	"	A6	Check to see if any change is needed in adjustment of A6. If so recheck ant. coil.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	6R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		DY-4020-150	EL-24	AF84D4A +	UP4CJ59+	FP308+	■ Filter
B	20	150							▲ "
7	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
9	.004	600		S-6-004	TC-24	684-004	DT6D4	TP407	Audio Coupling
10	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	" "
11	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
12	.15	400		S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
13	500	500		MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Audio Plate Bypass
14	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.
15	50	500		MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
16	300	500		MO.5-33	1FM-33	1468-0003	5W5T3	MC241	Ant. Coupling

+Do not use bypass section.

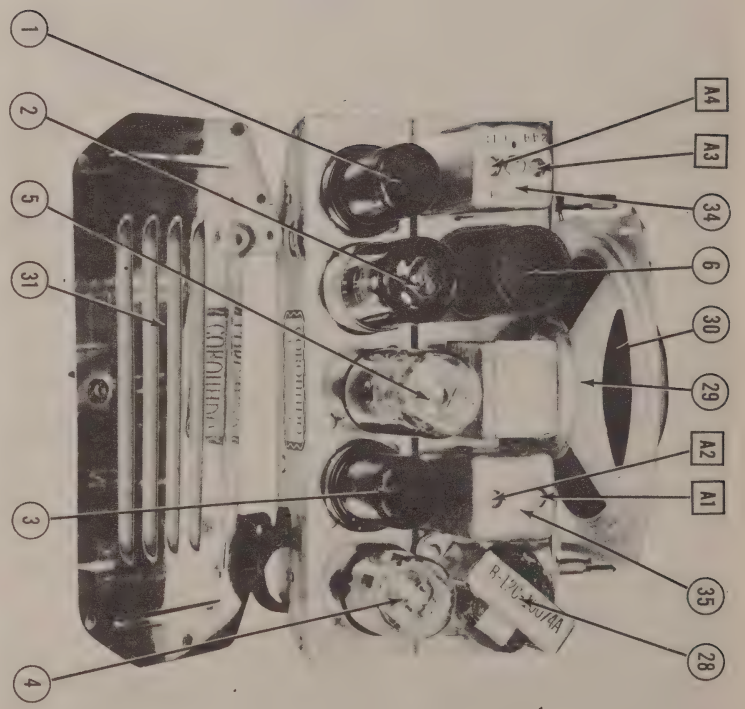
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	101272	MK401	D13-133	AM-60-Z	Volume Control.
B	Shaft		Not Req.	Not Req.	E	KCS-3	Attach to 17A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
19	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Line Isolation
20	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
21	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
22	150KΩ	½		BTS-150K	Br.-Grn.-Yl. AF Plate Load
23	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
24	150Ω	½		BW-½-150	Br.-Grn.-Br. " Cathode
25	1200Ω	1		BTA-1200	Br.-Red-Red- Filter
26	27Ω	½		BW-½-27	Red-Vi.-Blk. Rectifier Ballast
27	33Ω	1		BW-1-33	Or.-Or.-Blk. Series Filament

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

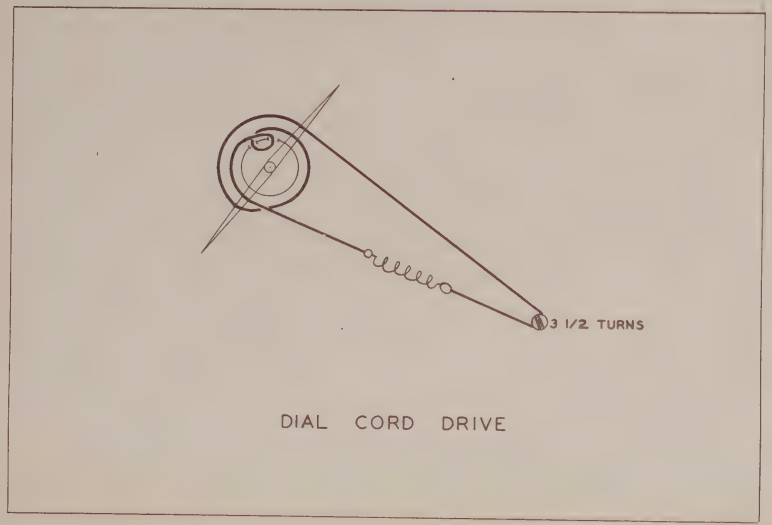
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
28	23002	3.72	190Ω	.72	B-12C-10074	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CORONADO PART No.	JENSEN PART No.		
29	FIELD PM	VC IMP. 3.7Ω	114268	ST-113 Mod. P4-X		Some models may use dynamic speaker.
30	CONE DIA. 4"	VC DIA. ½"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

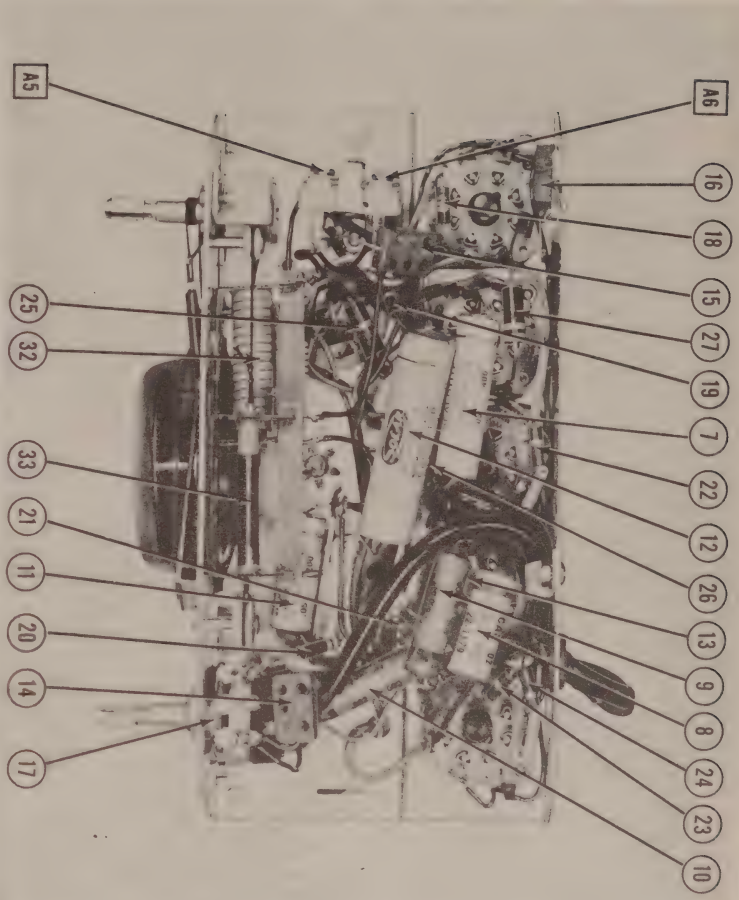
R F COILS

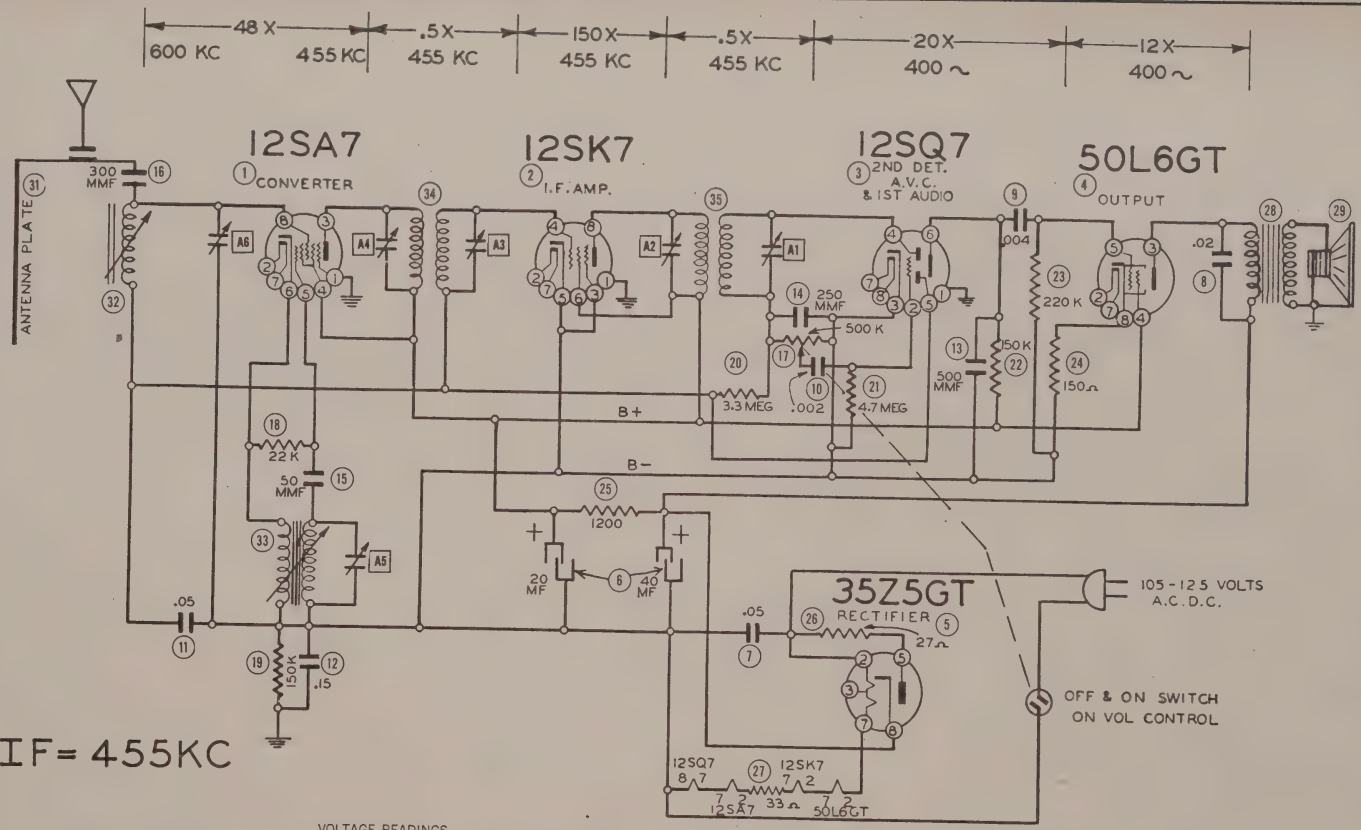
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
31	Plate Ant.					
32	Ant. Coil		9.3Ω			Items 32 & 33 ganged together and slug tuned.
33	Osc. Coil	.8Ω	6.8Ω			
34	Input IF	40.5Ω	40Ω	108157H	16-6666	
35	Output IF	32Ω	36Ω	108157OR	16-6667	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	23 V.AC	93 V.DC	93 V.DC	−5.9 V.DC	0V.	11.5 V.AC	−4 V.DC
2	12SK7GT	0V.	38 V.AC	0V.	−4 V.DC	0V.	93 V.DC	27 V.AC	93 V.DC
3	12SQ7GT	0V.	−6 V.DC	0V.	−3 V.DC	−4 V.DC	65 V.DC	11.5 V.AC	0V.
4	50L6GT	0V.	87 V.AC	124 V.DC	93 V.DC	0V.	0V.	38 V.AC	6 V.DC
5	35Z5GT	0V.	117 V.AC	112 V.AC	130 V.DC	115 V.AC	0V.	87 V.AC	130 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	160 KΩ	22Ω	25 KΩ	25 KΩ	20 KΩ	.5Ω	11Ω	3.1 MEG.
2	12SK7GT	160 KΩ	65Ω	0Ω	3.1 MEG.	0Ω	25 KΩ	54Ω	25 KΩ
3	12SQ7GT	160 KΩ	4 MEG.	0Ω	630 KΩ	3.1 MEG.	175 KΩ	11Ω	0Ω
4	50L6GT	INF.	110Ω	25 KΩ	25 KΩ	200 KΩ	INF.	65Ω	145Ω
5	35Z5GT	INF.	135Ω	130Ω	25 KΩ	165Ω	INF.	110Ω	25 KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CORONADO
MODELS 43-8240, 43-8241

CORONADO
MODELS 43-8240, 43-8241

CORONADO MODEL 43-8240

TRADE NAME	Coronado, Models 43-8240, 43-8241
MANUFACTURER	"Coronado" - Minneapolis, Minn. and Los Angeles, Calif.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Ant.
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING .245 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer to last reference mark. Use isolation transformer if available. If not connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. When aligning keep loop and chassis in same relative position as when set is in cabinet.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1620KC	"	"	A5	Adjust for maximum output.
	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into set. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		DSB-2x40-150	TA-440	PRSA150-40-	BRD4415	2N511	Filter - Red
B	40	150				40			" "
7	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
9	.004	600		S-6-004	TC-24	684-004	DT6D4	TP407	Audio Coupling
10	.002	600		S-6-002	TC-22	684-002	DT6D4	TP405	" "
11	.05	200		S-4-05	TC-15	484-05	DT4S5	TP428	AVC Filter
12	.05	200		S-4-05	TC-15	484-05	DT4S5	TP423	RF Bypass Pwr. Supp.
13	.15	400		S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
14	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	Ant. Coupling
15	500	500		MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Audio Plate Bypass
16	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Vol. Cont.
17	200	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1	101-265	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

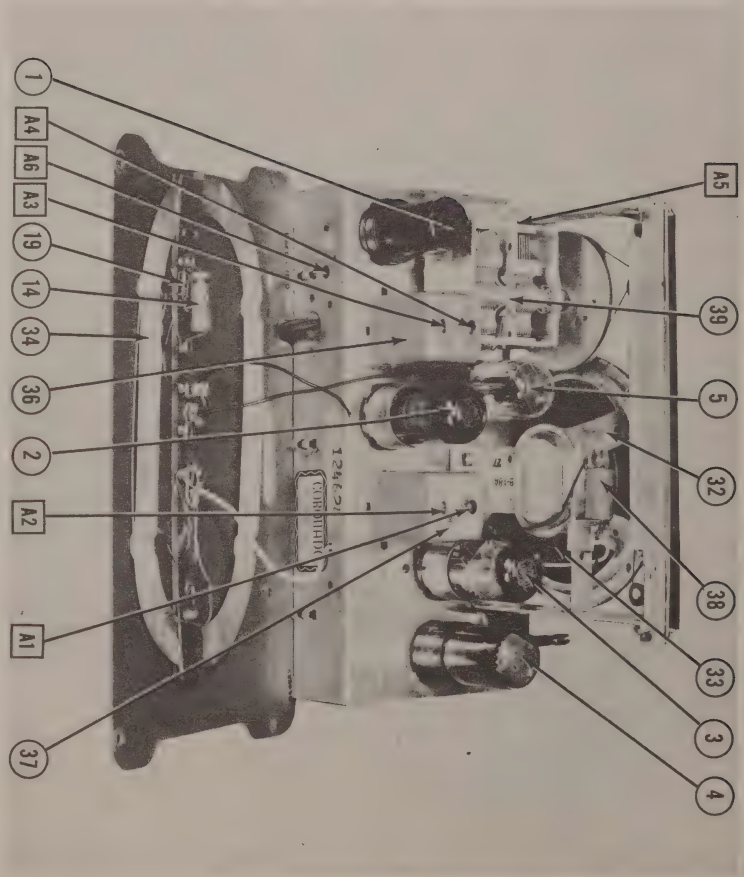
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
19	1000Ω	½		BTS-1000	Br.-Blk.-Red Antenna Loading
20	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Oscillator Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
22	47Ω	½		BW-½-47	Yl.-Vi.-Blk. IF Cathode
23	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
26	680KΩ	½		BTS-680K	Blue-Gray-Yl. Output Grid
27	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
28	1200Ω	1		BTA-1200	Br.-Red-Red Filter
29	30Ω	1		BW-1-27	Or.-Blk.-Blk. Series Filament
30	25Ω	1		BW-½-27	Red-Grn.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CORONADO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
31	2500Ω	3.2Ω	200Ω	.47Ω	105108D	A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107†		
32	PM	3.2Ω	18A-10952	Mod. P5-V		†Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
33	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

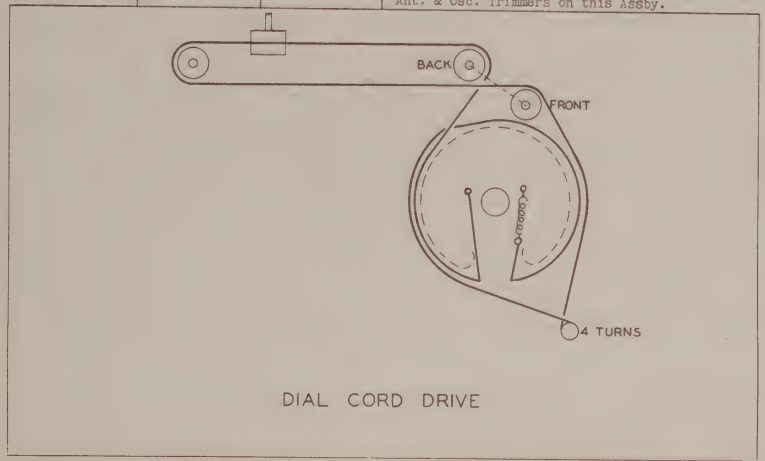
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
34	Loop Ant.	.3Ω	1.4Ω			
35	Osc. Coil	1.2Ω	4.3Ω		14-1040	
36	Input IF	32.5Ω	32.5Ω	108140NR	16-6658	
37	Output IF	33Ω	34Ω	108141GR	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA	INSTALLATION NOTES
38	Bayonet	6-8	0.15	Brown			Type 47

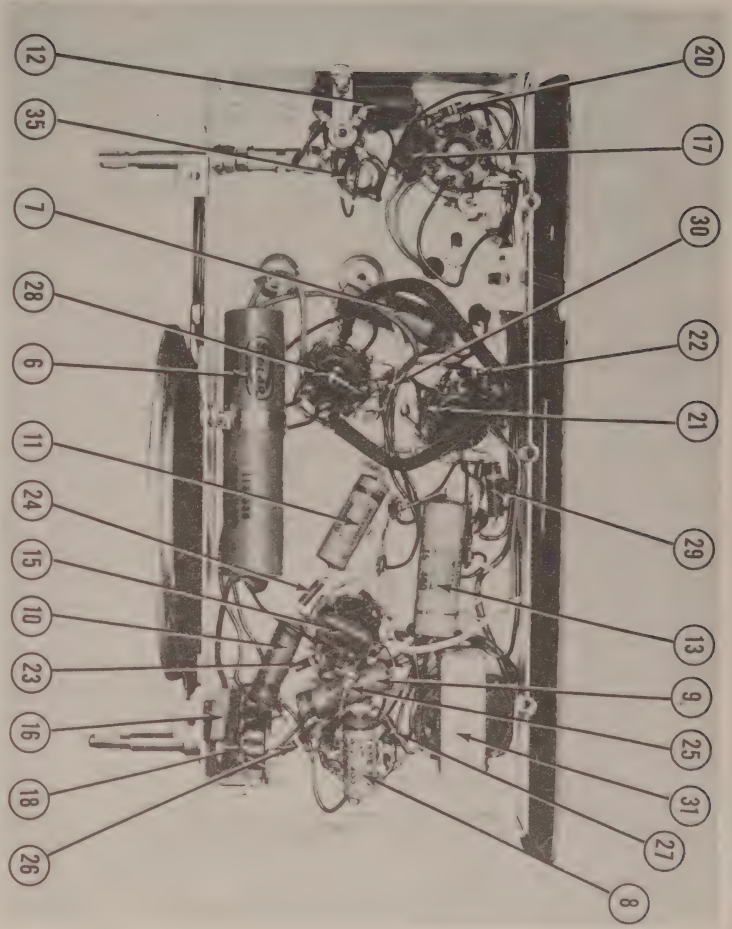
MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
39	2 Gang Var. Cap.	102151	(18-519 MMF, 37-267 MMF) Ant. & Osc. Trimmers on this Assby.

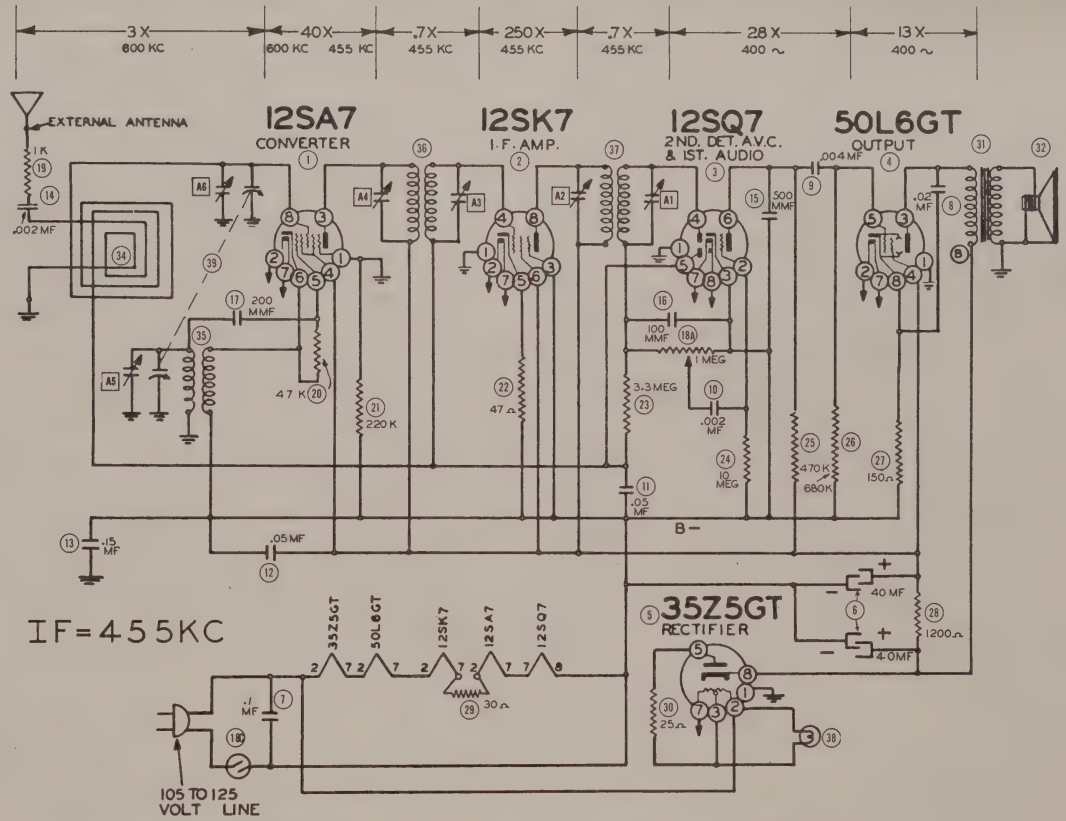


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



CORONADO MODELS
43-6240, 43-6241



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	23V.AC	88V.DC	88V.DC	-7.3V.DC	0V.	11V.AC	-5 V.DC
2	12SK7GT	0V.	38 V.AC	0V.	-5 V.DC	-6 V.DC	88 V.DC	23V.AC	88 V.DC
3	12SQ7GT	0V.	-9V.DC	0V.	-4 V.DC	-5 V.DC	56 V.DC	11V.AC	0V.
4	50L6GT	0V.	88V.AC	112V.DC	88V.DC	0V.	0V.	38 V.AC	6V.DC
5	35Z5GT	0V.	117V.AC	113 V.AC	88 V.DC	102V.AC	0V.	88 V.AC	119V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	200Kn	22n	80Kn	80Kn	44Kn	1n	11n	3.7MEG.
2	12SK7GT	200Kn	60n	0n	3.7MEG.	41n	80Kn	50n	80Kn
3	12SQ7GT	200Kn	9 MEG.	0n	850Kn	3.7MEG.	550Kn	11n	0n
4	50L6GT	INF.	100n	80Kn	80Kn	650Kn	0n	60n	140n
5	35Z5GT	INF.	125n	122n	80Kn	145n	0n	100n	80Kn

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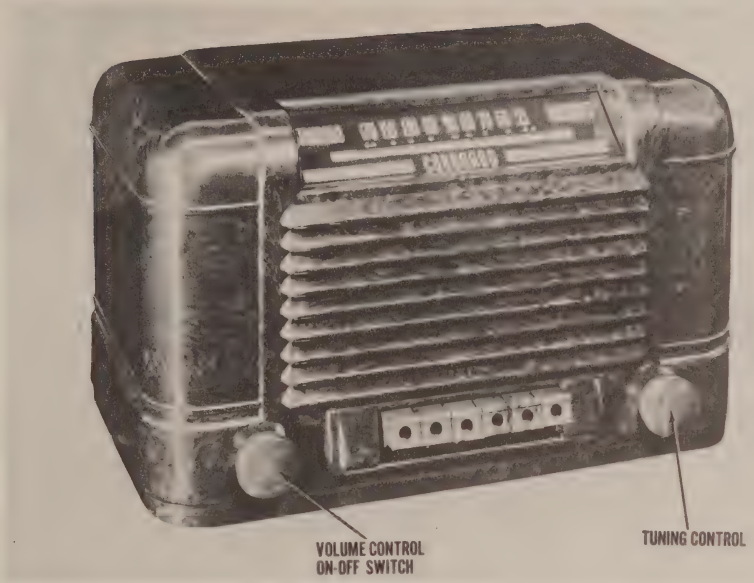
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CORONADO
MODELS 43-8351, 43-8352



CORONADO MODEL 43-8351

TRADE NAME	Coronado Models 43-8351, 43-8352
MANUFACTURER	Coronado, Minneapolis, Minn. & Los Angeles, Calif.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SA7 Converter, 12SK7GT 1st IF Amp., 12SK7GT 2nd IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	530-1720KC RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, fully close the variable and set pointer at the last reference mark at the right end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #4 of 12SK7 2nd IF. Amp. (3). Low side to B-.	455KC	High freq. end	Across voice coil	A1,A2.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	High side to pin #8 of 12SA7. Low side to B-.	"	" " "	"	A3,A4.	"
.1 MFD.	"	1720KC	" " "	"	A5	"
200 MMF	High side to ext. ant. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

PUSHBUTTON ADJUSTMENTS

1. Insert a long slim screwdriver into the hole in front of one of the pushbuttons and loosen the locking screw.
2. Push button all the way in with screwdriver still engaged in screw.
3. Hold button in firmly and carefully tune in desired station.
4. Tighten the locking screw firmly.
5. Follow same procedure for remaining buttons.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	1st IF Amp.	12SK7GT	12SK7GT	8N	
3	2nd IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	119-135	DSB-403020-150	TA-220	PRSA150-40-40	BRD4215	TN129	Filter - Red
B	20	150							" - Green
C	20	150			UT-401	PRS150-20	BR2015		" - Yellow
8	.1	400	100-1	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Filter
9	.02	400	100-26	S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
10	.02	400	100-26	S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
11	.002	600	100-25	S-6-002	TC-22	684-002	DT6D2	TP405	" "
12	.05	400	100-9	S-4-05	TC-15	484-05	DT4S5	TP426	Line Isolation Trap
13	.1	200	100-1	S-4-1	TC-1	484-.1	DT4P1	TP428	Screen Bypass
14	.2	400	100-110	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation Trap
15	.05	200	100-9	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
16	.05	200	100-9	S-4-05	TC-15	484-05	DT4S5	TP426	" "
17	100	500	129-5	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Audio Plate Bypass
18	100	500	129-5	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Vol. Cont.
19	100	500	129-5	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Diode
20	100	500	129-5	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Coupling
21	100	500	129-5	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor

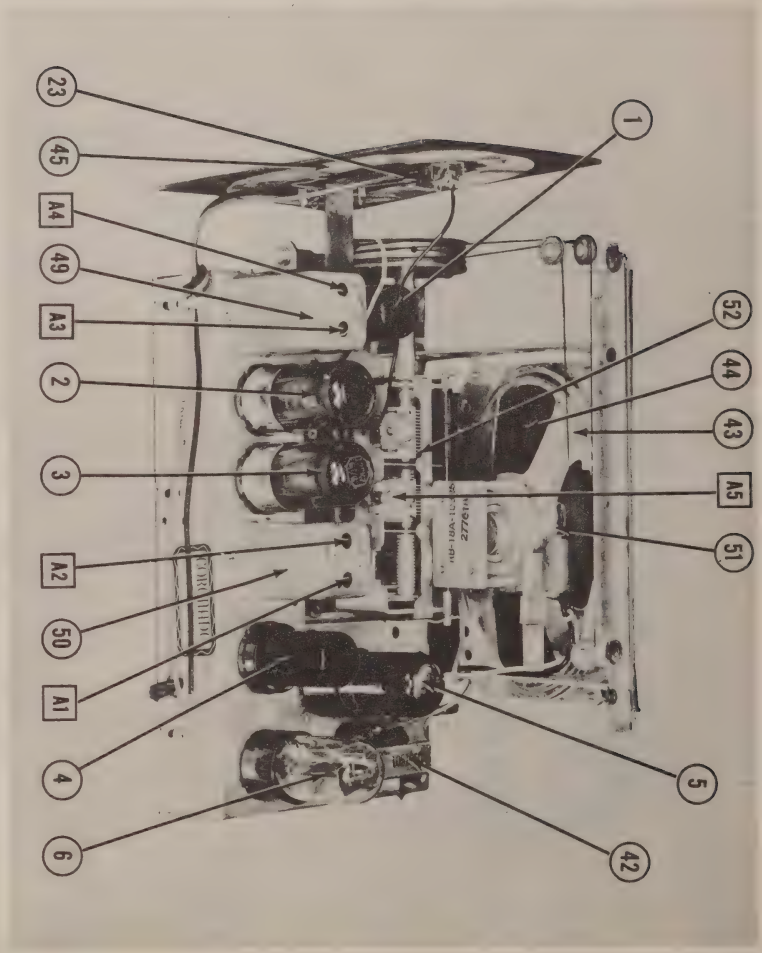
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22	1 Meg.	1	101-274				Volume Control and Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
23	1000Ω	½	C-9B1-13	BTS-1000	Br.-Blk.-Red Antenna Loading
24	150KΩ	½	A-9B1-26	BTS-150K	Br.-Grn.-Yl. AVC Network
25	22KΩ	½	A-9B1-27	BTS-22K	Red-Red-Or. Oscillator
26	220Ω	½	A-9B1-54	BW-½-220	Red-Red-Br. 1st IF Cathode
27	150KΩ	½	A-9B1-26	BTS-150K	Br.-Grn.-Yl. Line Isolation
28	10KΩ	½	A-9B1-74	BTS-10K	Br.-Blk.-Or. 1st IF Plate Load
29	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. 2nd IF Grid
30	1000Ω	½	A-9B1-62	BTS-1000	Br.-Blk.-Red Voltage Dropping
31	100Ω	½	A-9B1-50	BW-½-100	Br.-Blk.-Br. 2nd IF Cathode
32	3.3 Meg.	½	A-9B1-34	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
33	100KΩ	½	A-9B1-25	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
34	4.7 Meg.	½	A-9B1-35	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
35	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	1 Meg.	½	A-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
37	150Ω	½	A-9B1-52	BW-½-150	Br.-Grn.-Br. Output Cathode
38	22Ω	½	A-9B1-42	BW-½-22	Red-Red-Blk. Rectifier Ballast
39	220Ω	1	A-9B2-54	BW-1-220	Red-Red-Br. Filter
40	1200Ω	1	A-9B2-63	BTA-1200	Br.-Red-Red "
41	33Ω	1	C-9B2-44	BW-1-33	Or.-Or.-Blk. Line Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	3500Ω	3.7Ω	270Ω	.5Ω	105-106	A-3856	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CORONADO PART No.	JENSEN PART No.		
43A	FIELD	VC IMP.	B-18A-10325			
B	PM 450Ω	3.7Ω				Alternate Speaker
44	CONE DIA.	VC DIA.				
	4"x6"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

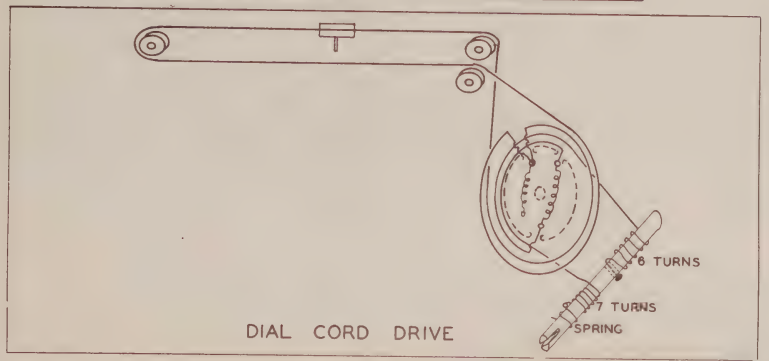
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
45	Loop Ant.	.5Ω	2.2Ω	111-260		
46	Osc. Coil	1.5Ω	3Ω	110-146	14-1040	
47	IF Filter Ch.		0Ω	105-140		
48	Filter Choke		0Ω	105-141		
49	Input IF	32.5Ω	32.5Ω	108-140P	16-6658	
50	Output IF	25Ω	25Ω	108-145Q	16-6660	

DIAL LIGHT

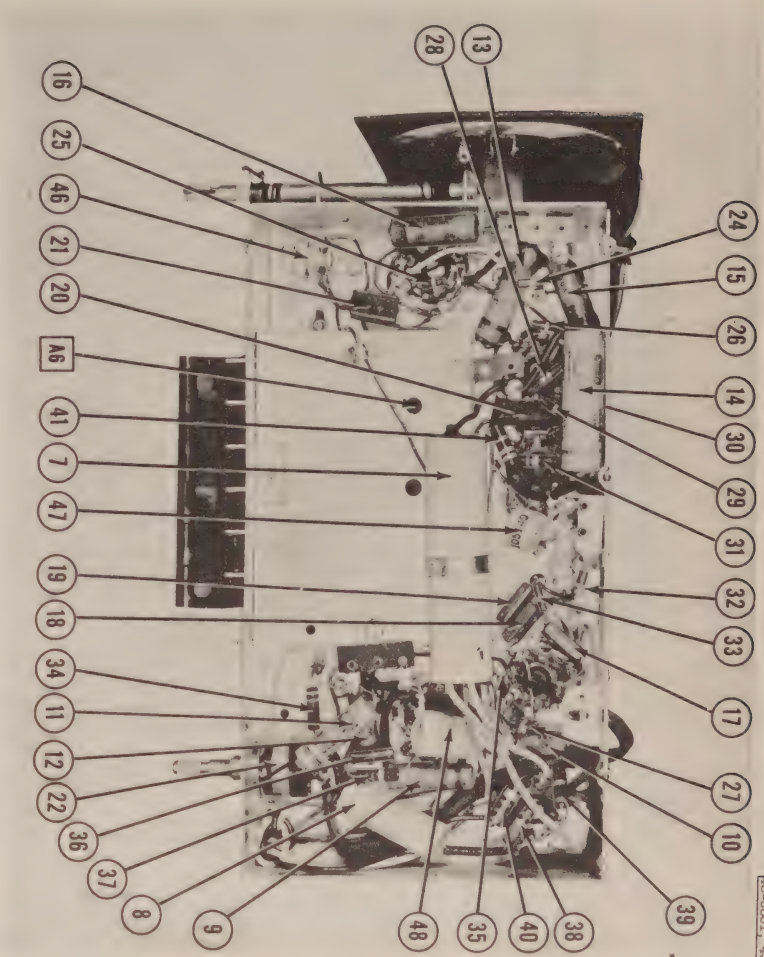
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CORONADO PART No.		
51	Bayonet	6-8	0.15	Brown	107-249		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
52	2 Gang Var.Cap.	B-8A-10186	(29-492 MMF, 30-216 MMF)

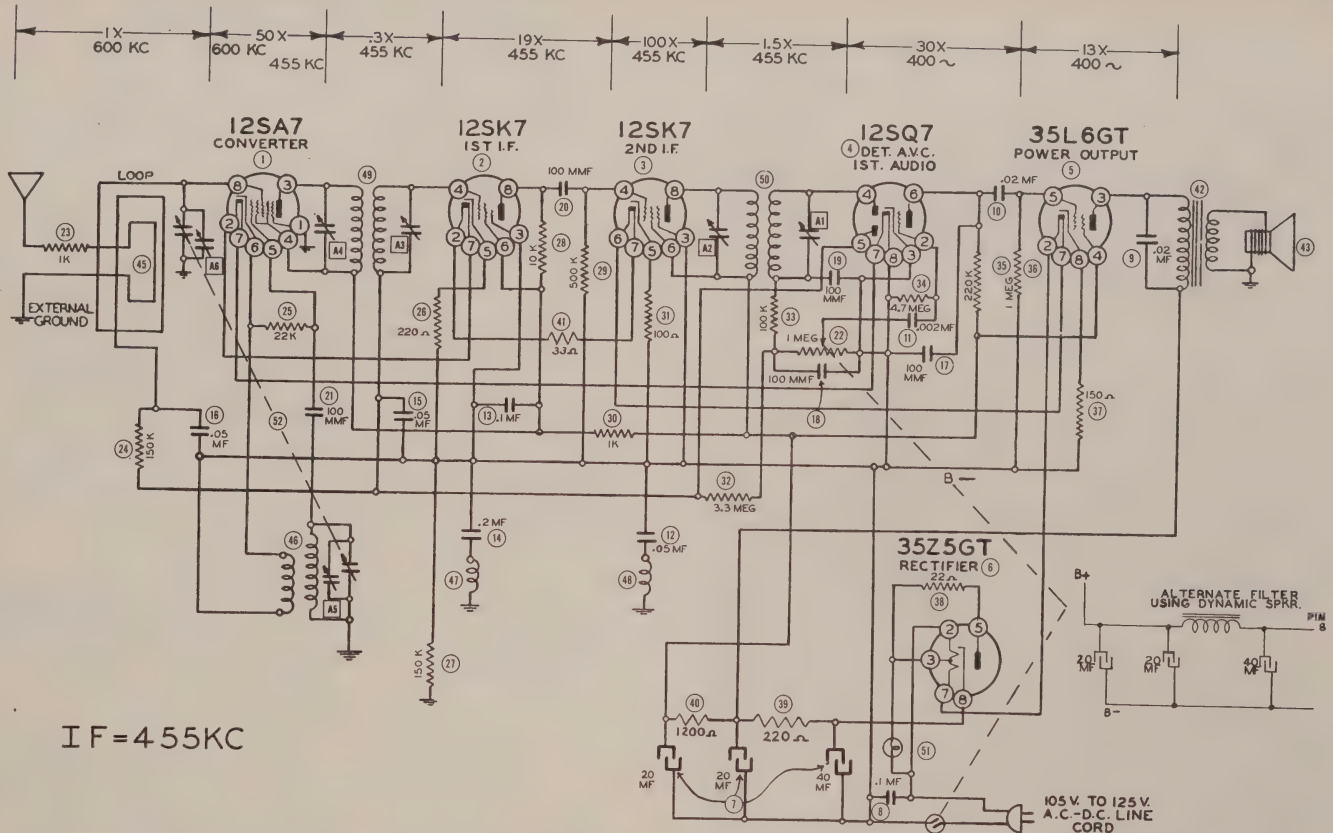


CHASSIS—BOTTOM VIEW



CORONADO MODELS 43-8351, 43-8352

CORONADO MODELS 43-8351, 43-8352



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	24 V.AC	68 V. DC	68V. DC	—4V. DC	0V.	12 V.AC	—2 V. DC
2	12SK7GT	0V.	35 V.AC	0V.	—1 V. DC	1.5V. DC	68V. DC	24V.AC	31 V. DC
3	12SK7GT	0V.	53 V.AC	0V.	0V.	1.2 V. DC	77 V. DC	40 V.AC	77 V. DC
4	12SQ7	0V.	—7 V. DC	0V.	0V.	—1 V. DC	58V. DC	12 V.AC	0V.
5	35L6GT	0V.	87 V.AC	101 V. DC	77 V. DC	0V.	0V.	53 V.AC	4 8 V. DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	77 V. DC	112 V.AC	109V. DC	87 V.AC	122 V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	140 KΩ	23 Ω	80 KΩ	80 KΩ	18 KΩ	1 Ω	12 Ω	4 MEG
2	12SK7GT	140 KΩ	34 Ω	0 Ω	4 MEG	190 Ω	80 KΩ	23 Ω	90 KΩ
3	12SK7GT	140 KΩ	75 Ω	0 Ω	390 KΩ	95 Ω	80 KΩ	63 Ω	80 KΩ
4	12SQ7	140 KΩ	4.5 MEG	0 Ω	1 MEG	4 MEG	280 KΩ	12 Ω	0 Ω
5	35L6GT	INF.	100 Ω	80 KΩ	80 KΩ	1.1 MEG	0 Ω	75 Ω	135 Ω
6	35Z5GT	INF.	125 Ω	122 Ω	80 KΩ	140 Ω	80 KΩ	100 Ω	80 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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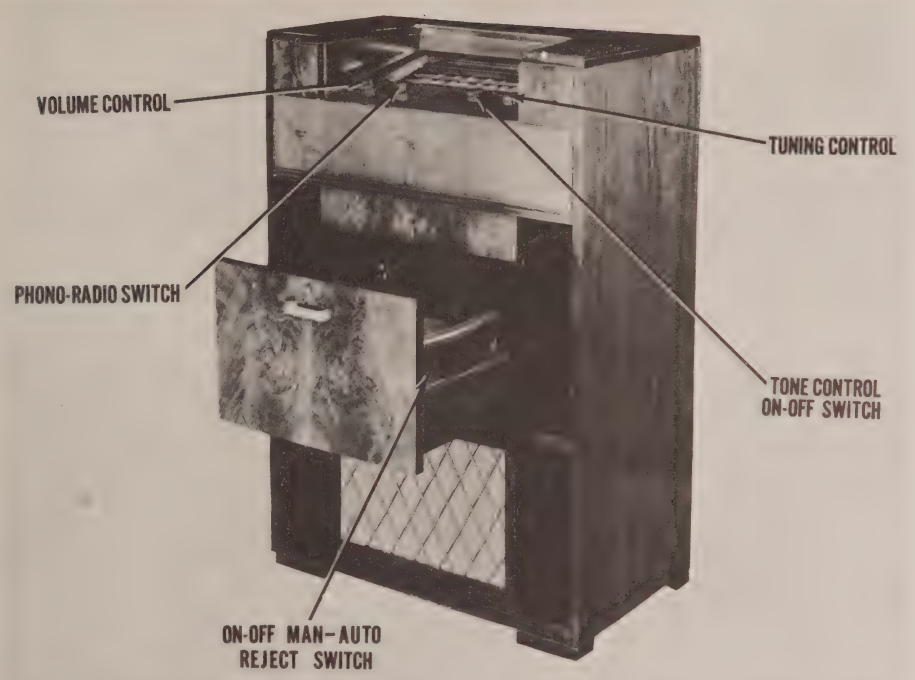
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CROSLEY
MODELS 86CR, 86CS

CROSLEY
MODELS 86CR, 86CS PAGE 1

TRADE NAME	Crosley, Models 86CR, 86CS
MANUFACTURER -	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC Operated Combination Automatic Phono.-Multiband Superheterodyne Receiver for Standard Broadcast and FM Reception. Self Contained Loop Antenna.
TUBES (EIGHT)	Types, 7F8 Local & 2nd Oscillator, 6AC7 Mixer, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6H6 Discriminator, 6SQ7 Det.-AVC-AF, 6V6GT/G Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.720 Amps. @ 117 Volts AC
FREQUENCY RANGES -	STANDARD BROADCAST - 535-1620KC SHORT WAVE - 9.4-11.9MC FM - 87.9-107.9MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Local & Second Osc.	7F8	7F8	8BW	
2	Mixer	6AC7	6AC7	8N	
3	1st IF Amp.	6SG7	6SG7	8BK	
4	2nd IF Amp.	6SG7	6SG7	8BK	
5	Discriminator	6H6	6H6	7Q	
6	Det.-AVC-AF	6SQ7	6SQ7	8Q	
7	Power Output	6V6GT/G	6V6GT/G	7AC	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	20	400	B-137028	DY-404	EL-323		UP90J55	FP429	Filter-Red
B	30	350			EL-20				" -Blue
C	20	300							" -White
D	20	25							Cath. Bypass-Brown
10	.01	600	39001-13	S-6-01	TC-11	684-01	DT6S1	TP410	Output Plate Bypass
11	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Output Cath. Bypass
12	.033	400	39001-40	S-6-03	TC-13	464-03	DT4S3	TP424	Audio Coupling
13	.003	600	39001-76	S-6-003	TC-23	684-003	DT6D3	TP406	Tone Compensation
14	.01	400	39001-37	S-4-01	TC-11	484-01	DT4S1	TP421	" "
15	.033	400	39001-40	S-6-03	TC-13	464-03	DT4S3	TP424	Audio Coupling
16	.033	400	39001-40	S-6-03	TC-13	464-03	DT4S3	TP424	" "
17	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	Disc. Filament Bypass
18	.001	600	39001-7	S-6-001	TC-21	684-001	DT6D1	TP404	RF Filter
19	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	2nd IF Plate Decoup.
20	.01	400	39001-37	S-4-01	TC-11	484-01	DT4S1	TP421	RF Bypass Pwr. Supp.
21	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
22	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	" "
23	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	1st IF Plate Decoup.
24	.022	200		S-4-02	TC-12	484-02	DT4S2	TP423	" " Screen Bypass
25	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	AVC Filter
26	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	Mixer Plate Decoup.
27	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	" Screen Bypass
28	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	Osc. Fil. Bypass
29	.005	600	39001-11	S-6-005	TC-25	684-005	DT6D5	TP408	2nd IF Screen Bypass
30	220	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Coupling
31	50	500	GC21065183	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Disc. Cath. Bypass
32	100	500	GC21065182	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Diode
33	27	500	B226638-50						6AC7 Plate Bypass Cer.
34	120	300	B226638-3						RF Coupling "
35	10	300	B226638-49						Osc. " "
36	91	300	B226638-52						Osc. Feedback "
37	39	300	B226638-51						Osc. Coupling. "
38	15	500	B226638-59						RF Coupling "
39	10	300	B226638-49						Fixed Trimmer "
40	27	500	B226638-50						2nd Osc. Grid Cap."
41	82	500	B226638-27						RF Coupling "
42	30	500		MOS.5-43	MS-43		5R5Q3		Fixed Trimmer "
92	50	500	W-136324						" " "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
43A	2.5 Meg.	1	B135734				Tone Control.
B	Shaft		Not Req.				Attach to 43A per instructions.
C	Switch		" "				" " " " "
44A	3.5 Meg.	1	B135783A	TM257			Volume Control.
B	Shaft		Not Req.	SS25			Attach to 44A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
45	560KΩ	½	39014-58	BTS-560K	Grn.Blue-Yl. Second Osc. Plate Load.
46	56KΩ	½	39014-46	BTS-56K	Grn.-Blue-Or. " " Grid.
47	22KΩ	½	39014-41	BTS-22K	Red-Red-Or. Oscillator Grid
48	1 Meg.	½	39294-31	BTS-1 Meg.	Br.-Blk.-Grn. Mixer Grid
49	120KΩ	½	39014-50	BTS-120K	Br.-Red-Yl. " Screen Dropping
50	10KΩ	1		BTA-10K	Br.-Blk.-Or. Oscillator Plate Load
51	2200Ω	½	39294-15	BTS-2200	Red-Red-Red Mixer Plate Decoupling
52	1 Meg.	½	39294-31	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
53	47KΩ	½	39014-45	BTS-47K	Yl.-Vi.-Or. 1st IF Screen Dropping
54	2200Ω	½	39294-15	BTS-2200	Red-Red-Red " " Plate Decoupling
55	68KΩ	½	39294-24	BTS-68K	Blue-Gray-Or. AVC Network
56	680KΩ	½	39294-30	BTS-680K	Blue-Gray-Yl. " "
57	27KΩ	1	39014-42	BTA-27K	Red-Vi.-Or. 2nd IF Screen Dropping
58	2200Ω	½	39294-15	BTS-2200	Red-Red-Red " " Plate Decoupling
59	220KΩ	½	39294-27	BTS-220K	Red-Red-Yl. Diode Load
60	100KΩ	½	39294-25	BTS-100K	Br.-Blk.-Yl. Discriminator Load
61	100KΩ	½	39294-25	BTS-100K	Br.-Blk.-Yl. " "
62	100KΩ	½	39294-25	BTS-100K	Br.-Blk.-Yl. " RF Filter
63	10 Meg.	½	39294-37	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
64	470KΩ	½	39014-57	BTS-470K	Yl.-Vi.-Yl. " " Plate Load
65	47KΩ	½	39014-45	BTS-47K	Yl.-Vi.-Or. Tone Compensation
66	470KΩ	½	39014-57	BTS-470K	Yl.-Vi.-Yl. Output Grid
67	220Ω	1	39015-17	BW-1-220	Red-Red-Br. " Cathode
68A	400Ω	10	W-137021	AB-400	Filter
68B	700Ω	10	W-137021	AB-750	"
69	120KΩ	½	39014-50	BTS-120K	Br.-Red-Yl. Oscillator Plate Dropping
70	1 Meg.	½	39294-31	BTS-1 Meg.	Br.-Blk.-Grn. Antenna Isolation
71	1000Ω	½	39294-13	BTS-1000	Br.-Blk.-Red FM Antenna Coil Shunt

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.
72	117V AC @.72A	660V AC @.066A	5.3V AC @ 1.8A	6.6V AC @ 2.7A	B-135336	P-6012	T22R04

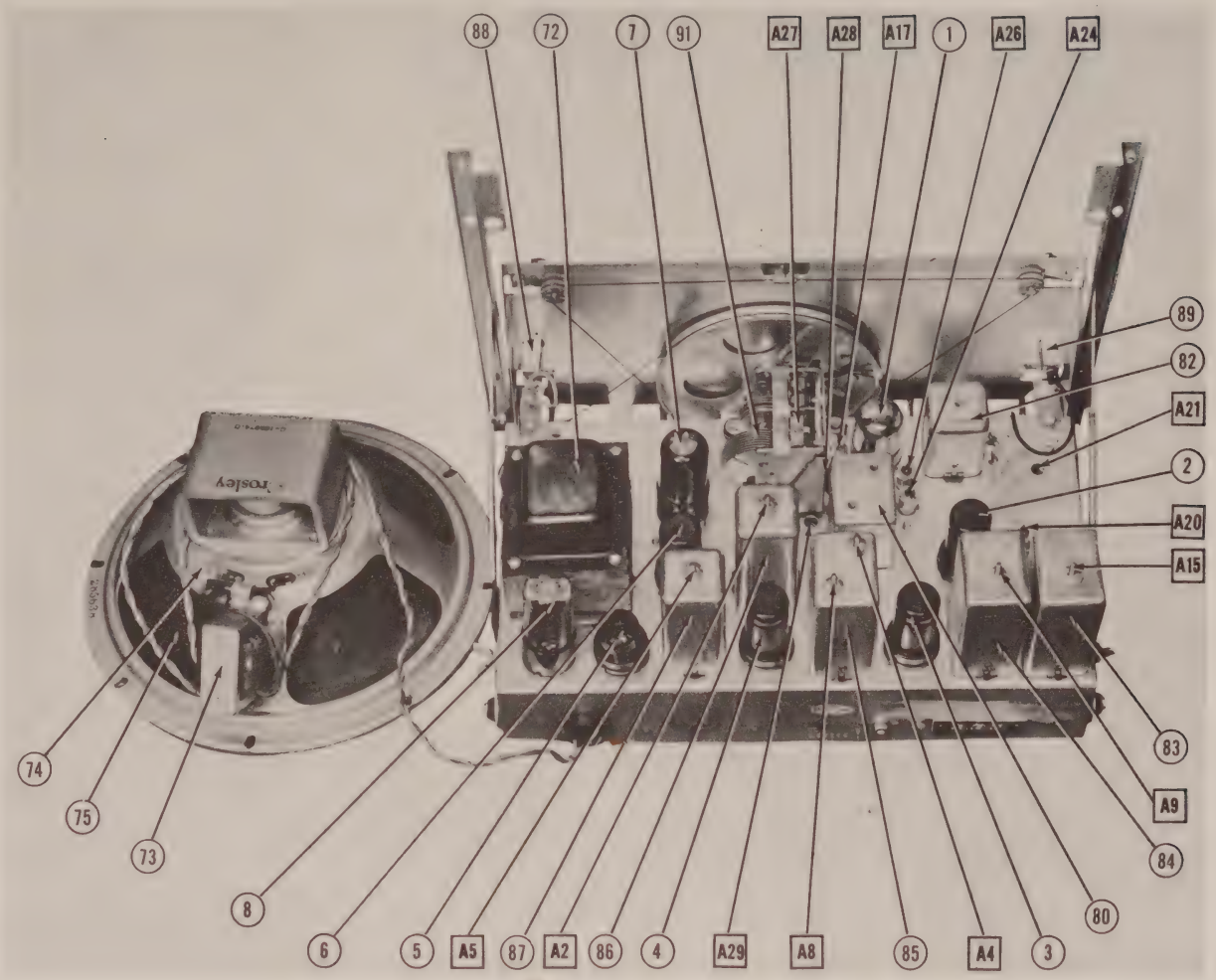
TRANSFORMER (OUTPUT)

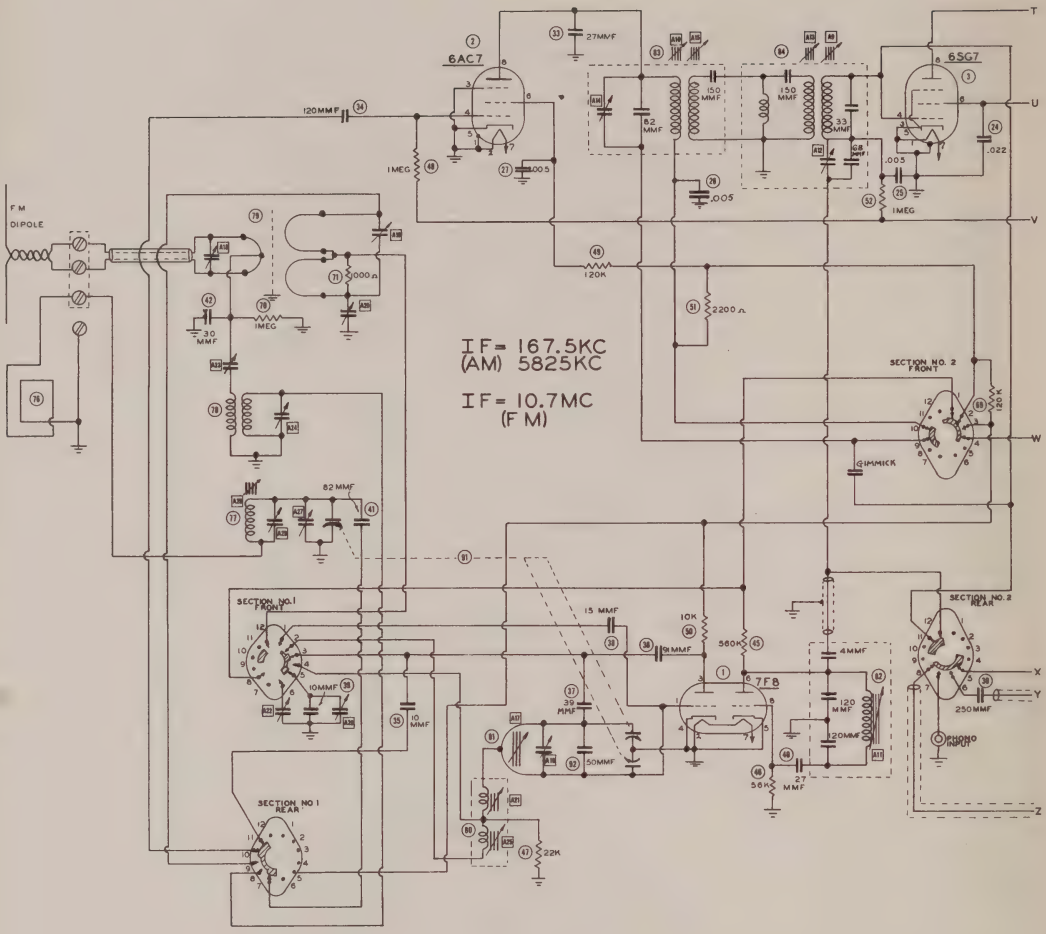
ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
73	4000Ω	3.9Ω	270Ω	.45Ω	Part of C-135974	A-3856	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
74	FIELD PM	VC IMP. 3.9Ω	C-135974	ST-120 + Mod. P10-S		+ Change output transformer to match 8Ω voice coil.
75	CONE DIA. 8½"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



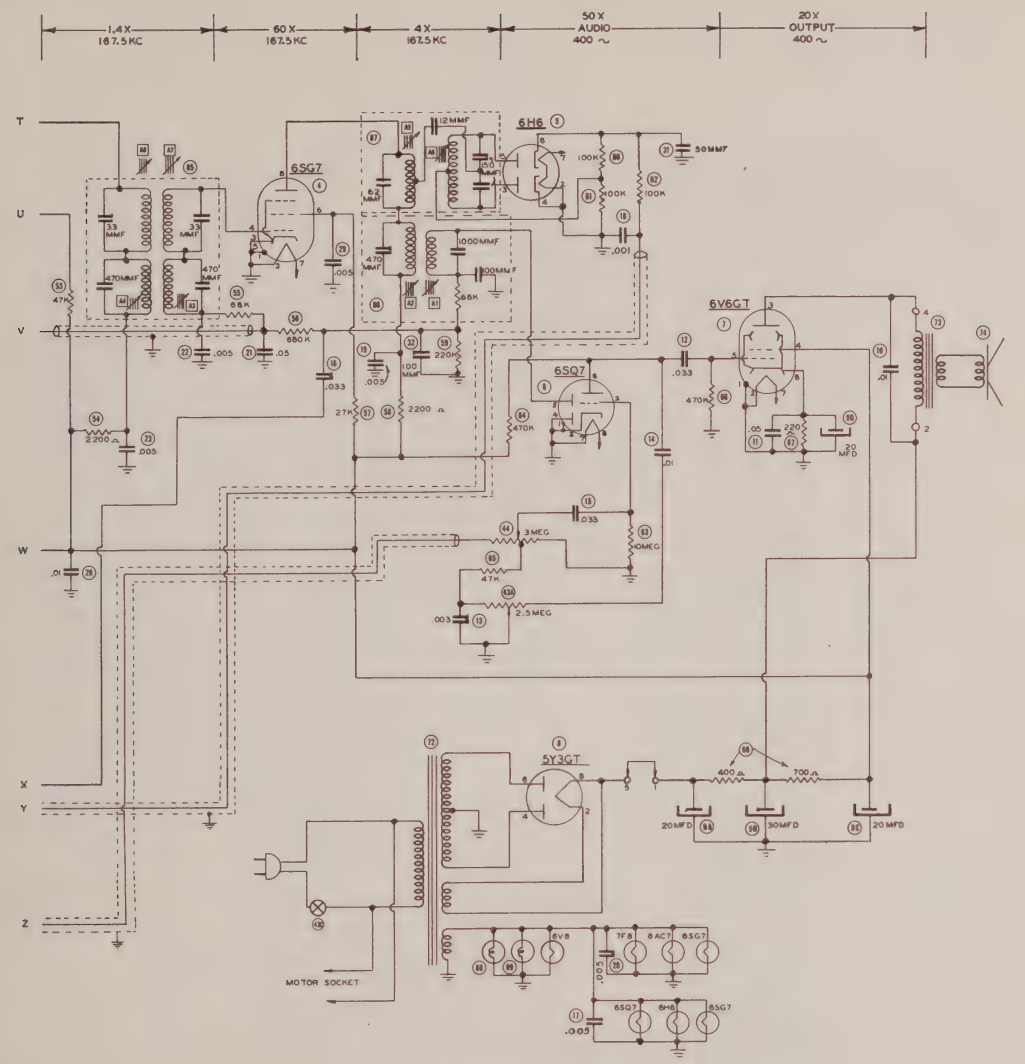


VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7F8	-3.4V.DC	0V.	57V.DC	0V.	0V.	30V.DC	6.6V.AC	-4V.DC
2	6AC7	0V.	0V.	0V.	-1V.DC	0V.	97V.DC	6.6 V.AC	270V.DC
3	6SG7	0V.	0V.	0V.	-7V.DC	0V.	133V.DC	6.6 V.AC	250V.DC
4	6SG7	0V.	0V.	0V.	-7V.DC	0V.	150V.DC	6.6V.AC	240 V.DC
5	6H6	0V.	0V.	-4V.DC	0V.	-4V.DC	0V.	6.6V.AC	0V.
6	6SQ7	0V.	-6V.DC	0V.	-4V.DC	0V.	100V.DC	6.6V.AC	0V.
7	6V6GT	0V.	0V.	300V.DC	285V.DC	0V.	0V.	6.6V.AC	25V.DC
8	5Y3GT	0V.	350V.DC	0V.	330V.AC	0V.	330V.AC	0V.	350V.DC

472-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement. The above figures are all that can be obtained with equipment usually available.



RESISTANCE READINGS

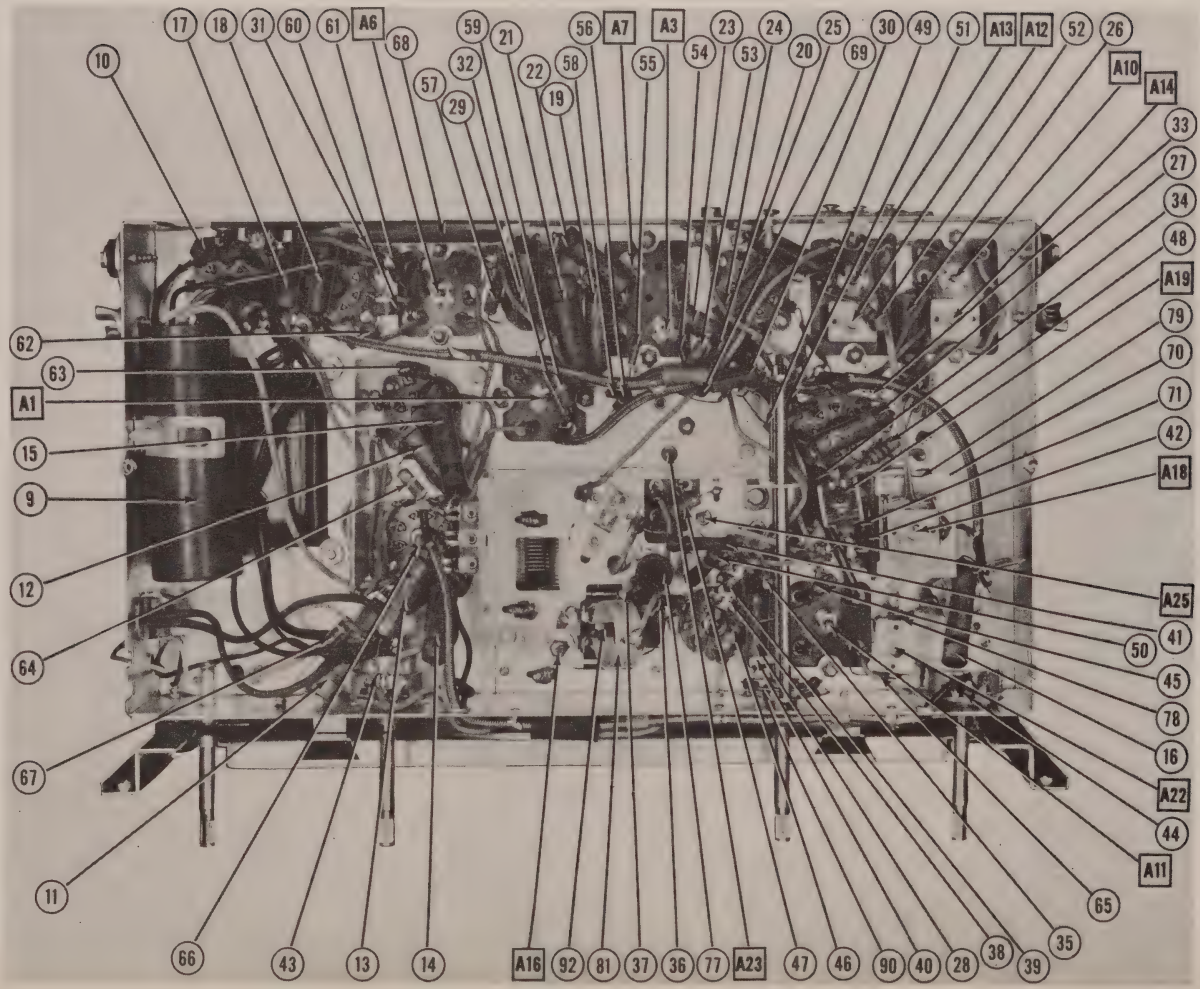
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7F8	22KΩ	0Ω	140KΩ	0Ω	0Ω	690KΩ	.1Ω	54KΩ
2	6AC7	0Ω	0Ω	0Ω	1.7MEG.	0Ω	250KΩ	.1Ω	130KΩ
3	6SG7	0Ω	0Ω	0Ω	1.7MEG.	0Ω	177KΩ	.1Ω	130KΩ
4	6SG7	0Ω	0Ω	0Ω	780KΩ	0Ω	157KΩ	.1Ω	130KΩ
5	6H6	0Ω	0Ω	105KΩ	210KΩ	105KΩ	310KΩ	.1Ω	0Ω
6	6SQ7	0Ω	9 MEG.	0Ω	240KΩ	0Ω	600KΩ	.1Ω	0Ω
7	6V8GT	0Ω	0Ω	130KΩ	130KΩ	460KΩ	INF.	.1Ω	200Ω
8	5Y3GT	INF.	130KΩ	INF.	100Ω	INF.	95Ω	INF.	130KΩ

472-10

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

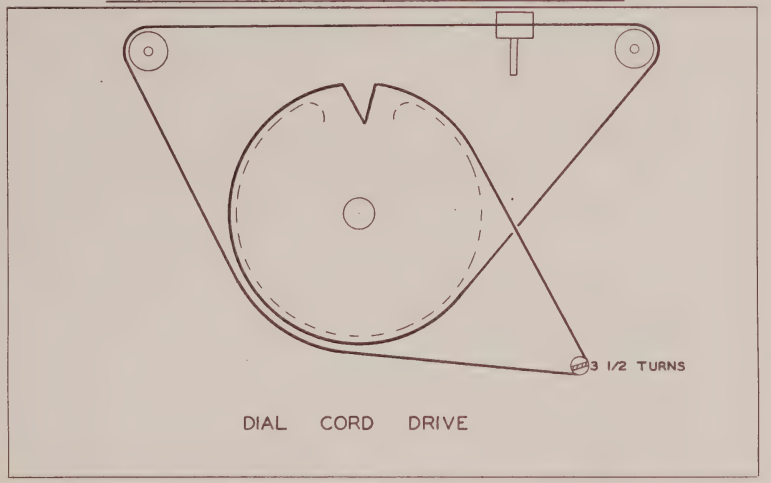
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CROSLEY PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
76	Loop Ant.		0Ω	W-137143		
77	BC Ant. Coil		7.5Ω	AW-136511		
78	SW Ant. Coil	.5Ω	.5Ω	AB-136444		
79	FM Ant. Coil	0Ω	0Ω	AC-136171		
80A	BC Osc. Coil		.7Ω	AC-136509		Items 80A, 80B wound on same form.
80B	SW Osc. Coil		.2Ω			
81	FM Osc. Coil		0Ω	W-136179		
82	2nd Osc. Coil		.5Ω	AC-136390		
83	1st AM-FM IF	.5Ω	0Ω	AC-136264		
84	2nd AM-FM IF	0Ω	.5Ω	AC-136061		
85A	3rd AM IF	30Ω *	32Ω *	AC-136276		* Resistance includes both primaries and both secondaries.
85B	3rd FM IF	*	*			
86	4th AM IF	28Ω		AC-136261		
87	Disc. IF	.2Ω	.2Ω	AC-136260		

DIAL LIGHT

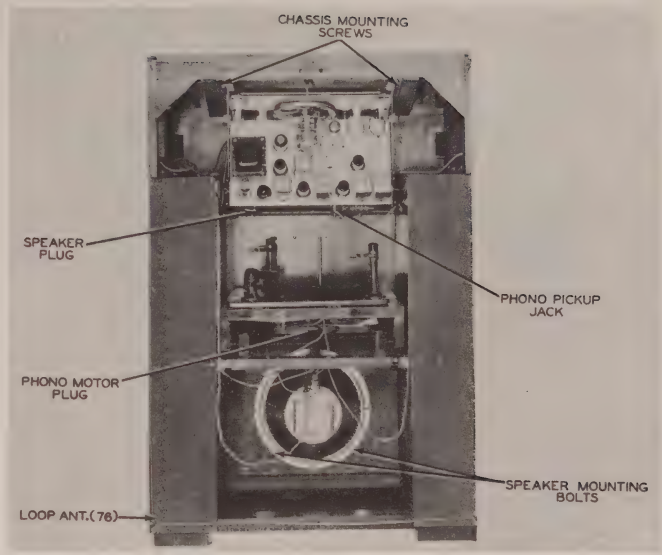
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA CROSLEY PART No.		INSTALLATION NOTES
88	Bayonet	6-8	0.15	Brown			Type 47
89	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
90	Band Switch	C-136161	
91	3-Gang Var. Cap.	C-135496	(16-410 MMF, 12-57 MMF, 12-57 MMF)
	Transmission Line	W-137143	75Ω



DIAL CORD DRIVE



DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type knobs.
2. Remove speaker plug from chassis.
3. Remove phono-pickup jack from chassis.
4. Remove loop and FM Ant. dipole leads from antenna terminal strip.
5. Remove phono-motor plug.
6. Release clamps holding speaker and phono motor cable.
7. Release clamp holding power cord.
8. Remove two Phillips head screws from top of cabinet holding chassis.
9. Remove two Phillips head screws from braces holding chassis. Remove chassis.
10. Remove two self tapping screws holding panel board on bottom of chassis. Remove board.
11. Remove four hex nuts and washers holding speaker. Remove speaker.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the 200 mark on the FM dial. Set volume control at maximum volume, tone control at maximum treble and keep output of signal generator no higher than is necessary to obtain output reading.

Use a vacuum tube voltmeter, preferably zero center scale, as an output indicator for all FM adjustments. For adjustment of A20 connect 5 feet of 75 ohm line to the dipole terminals. Connect a 20 microampere microammeter in series with a Germanium crystal type 1N34 to the end of this line. Adjust for minimum radiation. For the FM dummy ant. connect 39 ohm resistors in series with both the high and low sides of the signal generator and connect to the dipole terminals. Connect low side directly to chassis.

Before adjusting A16 and A17 (FM oscillator) set signal generator to 87.9 MC and check to see if receiver tunes to, or through, signal. (Channel 200). Set signal generator to 107.9MC and see if receiver tunes through signal. (Channel 300). If receiver tunes through these signals and calibration is correct, FM oscillator adjustment is not needed. To increase the range of the FM oscillator, A17 should be turned clockwise and to decrease frequency range A17 should be turned counter-clockwise.

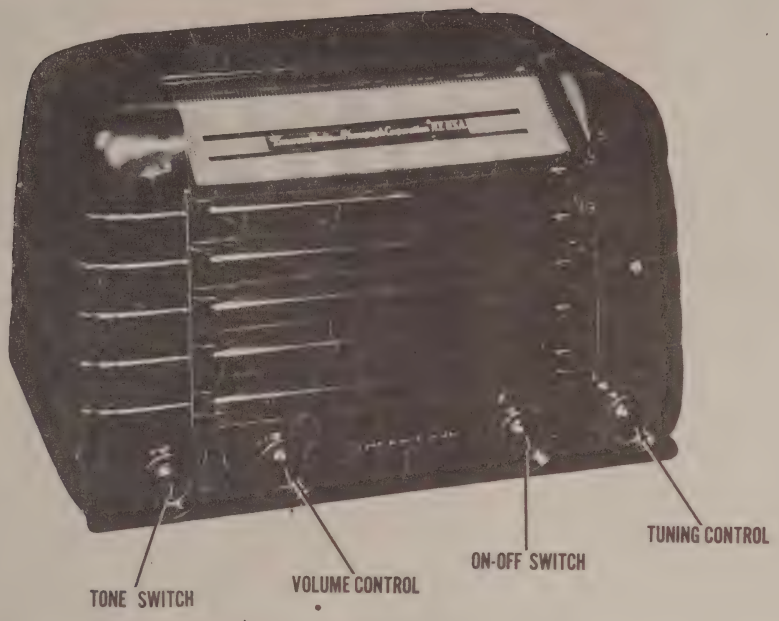
Apply speaker cement to all air trimmer adjustment screws after alignment is completed.

READ ALIGNMENT INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #4 of 6SG7 2nd IF Amp. (4). Low side to pin #1 of same tube.	167.5KC	SW	Variable fully open.	Across voice coil	A1,A2.	Adjust for maximum output.
.1 MFD.	High side to pin #4 of 6SG7 1st IF Amp. (3). Low side to pin #1 of same tube.	"	"	"	"	A3,A4	" " " "
30 MMF.	High side to pin #4 of 6SG7 2nd IF Amp. (4). Low side to pin #1 of same tube.	10.7 MC	FM	"	VTVM connected at junction of disc. diode resistors (60&61) and chassis	A5	" " " "
30 MMF.	"	"	"	"	VTVM connected to pin #4 of 6H6 and chassis.	A6	Adjust for zero output. Swing signal generator 80KC above and 80KC below 10.7 MC. Record readings on VTVM at each of these settings. They should be equal but of opposite polarity. If they are not equal, repeat last two steps. It may be necessary to adjust A6 slightly to get these readings equal.
30 MMF.	High side to pin #4 of 6SG7 1st IF Amp. (3). Low side to pin #1 of same tube.	"	"	"	VTVM connected at junction of disc. diode resistors (60&61) and chassis.	A7,A8	Adjust for maximum output
30 MMF.	High side to pin #4 of 6AC7. Low side to pin #1 of same tube.	"	"	"	VTVM connected to pin #4 of 6AG7 2nd IF Amp. (4) and chassis	A9,A10	" " " "
30 MMF.	High side to pin #4 of 6AG7 1st IF Amp. (3). Low side to pin #1 of same tube.	5825 KC	SW	"	Across voice coil	A11	Shunt 2200Ω resistor across primary of 1st 1675 KC IF trans. Adjust A11 for maximum output.
30 MMF.	High side to input or 2nd 5825KC IF trans. Low side to ground terminal on same trans.	"	"	"	"	A12,A13	With shunt still connected adjust for maximum output. Repeat A11,A12 and A13 in that order until no further improvement can be made.

READ ALIGNMENT INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
40 MMF.	High side to pin #4 of 6AC7. Low side to pin #1 of same tube.	"	"	"	"	A14,A15	Adjust for maximum output, then remove 2200Ω shunt.
75Ω dummy (See prealignment instructions)	To dipole terminals.	107.9 MC	FM	300	VTVM connected to pin #4 of 6AG7 2nd IF Amp.(4) and chassis.	A16	FM oscillator adjustment may not be necessary. (See prealignment instructions) Adjust for maximum output
"	"	87.9MC	"	200	"	A17	Adjust for maximum output. Recheck A16 at 107.9MC.
"	"	102.MC	"	Tune for maximum output.	"	A18	Adjust for maximum output.
"	"	92 MC	"	"	"	A19	" " " "
			FM	215	See prealignment instructions	A20	Adjust for minimum reading on microammeter. If moved more than 1/4 turn, recheck A16 & A19.
30 MMF.	High side to one FM dipole term. Low side to chassis.	11.8MC	SW	11.8	Across voice coil	A21	Adjust for maximum output
30 MMF.	"	9.6 MC	"	9.6	"	A22	Adjust for maximum output. Recheck A21 at 11.8 MC.
30 MMF.	"	11.8MC	"	Tune for maximum output.	"	A23	Adjust for maximum output
30 MMF.	"	9.6 MC	"	"	"	A24	" " " "
30 MMF.	"	Tune signal generator to null point. (Approx. 10.7 MC)	FM	200	"	A23	Adjust for better null point. This adjustment must be very slight.
30 MMF.	High side to ext. ant. terminal. Low side to chassis. Connect 100KΩ resistor across loop terminals.	1600KC	BC	1600KC	"	A25	Adjust for maximum output
30 MMF.	"	535 KC	"	Low freq.end	"	A26	Adjust for maximum output. Recheck A25 at 1600KC.
	Loop	1400 KC	"	Tune for maximum output.	"	A27	Install chassis in cabinet. Remove 100KΩ resistor from loop terminals and connect loop. Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	600 KC	"	"	"	A28	Adjust for maximum output.
	"	5825 KC	"	Low freq.end	"	A29	Adjust for minimum output.



EMERSON
MODELS 515, 516

EMERSON
MODELS 515, 516

EMERSON MODEL 515

TRADE NAME	Emerson, Models 515, 516
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-125 Volts AC DC
TUNING RANGE—BROADCAST	540-1620KC RATING .255 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	"	Low freq. end. (Variable fully closed)	"	A5	Adjust for minimum output.
200 MMF.	High side to ext. ant. lead. Low side to chassis.	1620KC	High freq. end. (Variable fully open)	"	A6	Adjust for maximum output.
200 MMF.	"	1400KC	Tune for maximum output.	"	A7	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	EMERSON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
7A	30	150	925110	DSB-5330-150	TA-530	PRSA150-40-40	BRD3515	2N520	Filter - Red
B	50	150							" - Green
8	.05	400	920030	S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
9	.2	200	920050	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation †
10	.02	400	920020	S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
11	.02	400	920020	S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
12	.002	600	920010	S-6-002	TC-22	684-002	DT6D2	TP405	Tone Compensation
13	.002	600	920010	S-6-002	TC-22	684-002	DT6D2	TP405	Audio Coupling
14	.05	200	920060	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
15	.05	400	920030	S-4-05	TC-15	484-05	DT4S5	TP426	RF Bypass Pwr. Supp.
16	.05	200	920060	S-4-05	TC-15	484-05	DT4S5	TP426	RF Screen Bypass
17	.002	600	920010	S-6-002	TC-22	684-002	DT6D2	TP405	Ant. Coupling *
18	220	500	910000	MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Plate Bypass
19	110	500	910010	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Vol. Cont.
20	110	500	910010	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling
21	220	500	910000	MO.5-32	1FM-32	1468-0002	5W5T2	MC237	" "

*Not used in all models.
†May be 600 volts in some models.

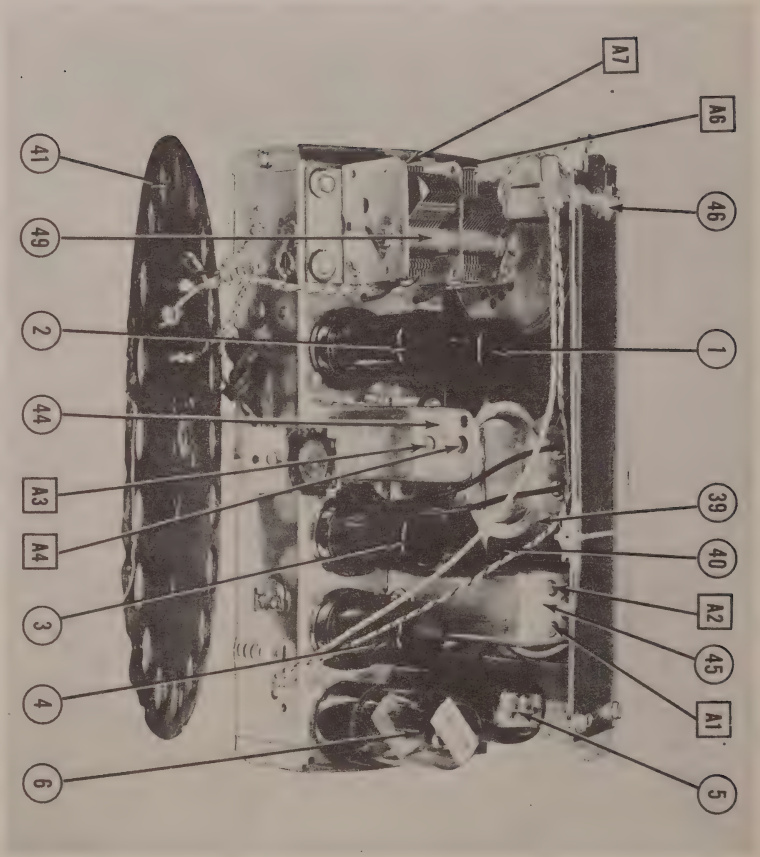
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ	1	39018	UM156	D11-133	AM-58-S	Volume Control
B	Shaft		Not Req.	SS26	E	KSS-3	Attach to 22A per instructions.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
23	10KΩ	½	310790	BTS-10K	Br.-Blk.-Or. RF Plate Load
24	22KΩ	½	310810	BTS-22K	Red-Red-Or. Converter Grid
25	39KΩ	½	310870	BTS-39K	Or.-White-Or. RF Screen Dropping
26	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. RF Grid
27	22KΩ	½	310810	BTS-22K	Red-Red-Or. Oscillator Grid
28	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
29	3.3 Meg.	½	321330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
30	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
32	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
33	18Ω	7	340290	BW-7-180	Br.-Grn.-Br. Output Cathode
34	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
35	15Ω	7	340080	BW-7-15	Br.-Grn.-Blk. Rectifier Ballast
36	10Ω	7	340010	BW-7-10	Br.-Blk.-Blk. Series Pilot Light
37	220KΩ	½	321050	BTS-220K	Red-Red-Yl. Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	2400Ω	4.6Ω	230Ω tapped @ 10Ω	.8Ω	734080	A-3676#			#Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
39	PM	4.6Ω	180006			
	CONE DIA.	VC DIA.				
40	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

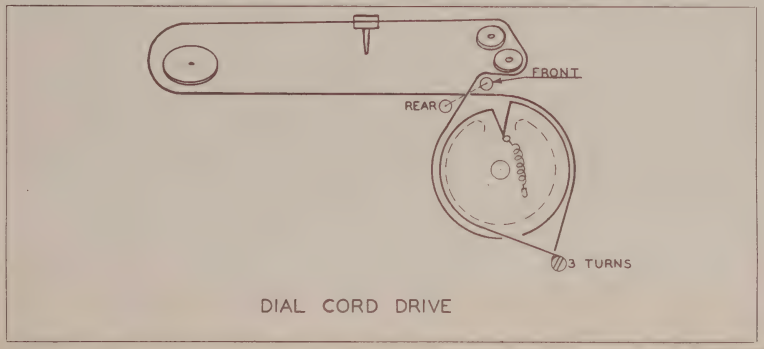
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
41	Loop	0Ω	1.5Ω	700010		
42	Osc. Coil	1Ω	6.5Ω	716070	14-1040 $	$ Add 50 MMF cap. from osc. grid to high side of tuning cap.
43	IF Wave Trap	60Ω		708080		
44	Input IF	35Ω	23Ω	720360	16-6666	
45	Output IF	28Ω		720390	16-6670‡	‡Drill new mounting holes.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
46	Bayonet	6-8	0.15	Brown			Type 47

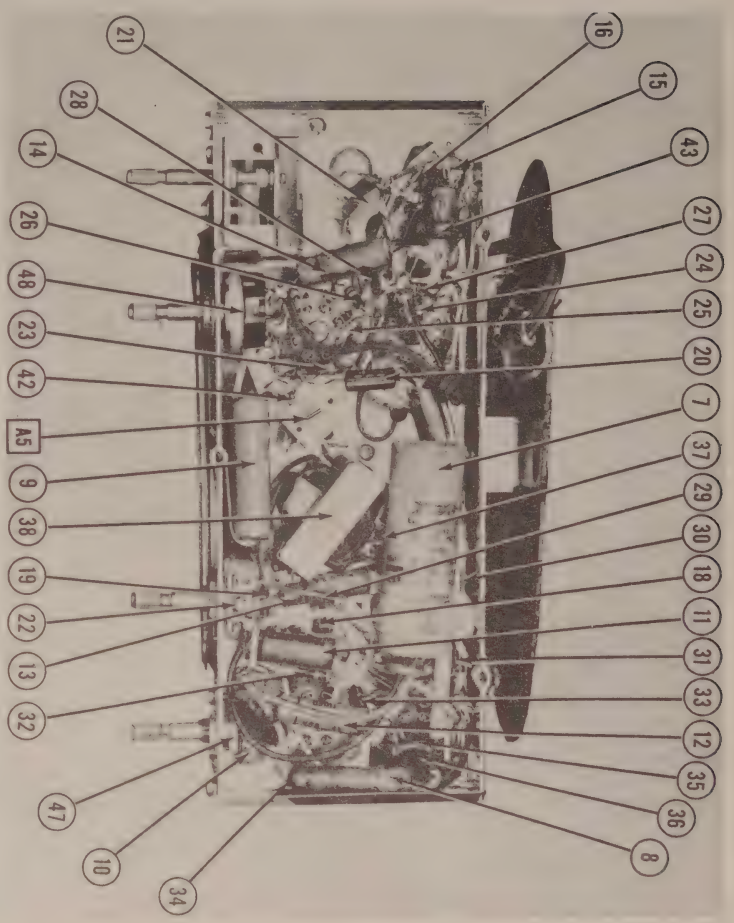
MISCELLANEOUS

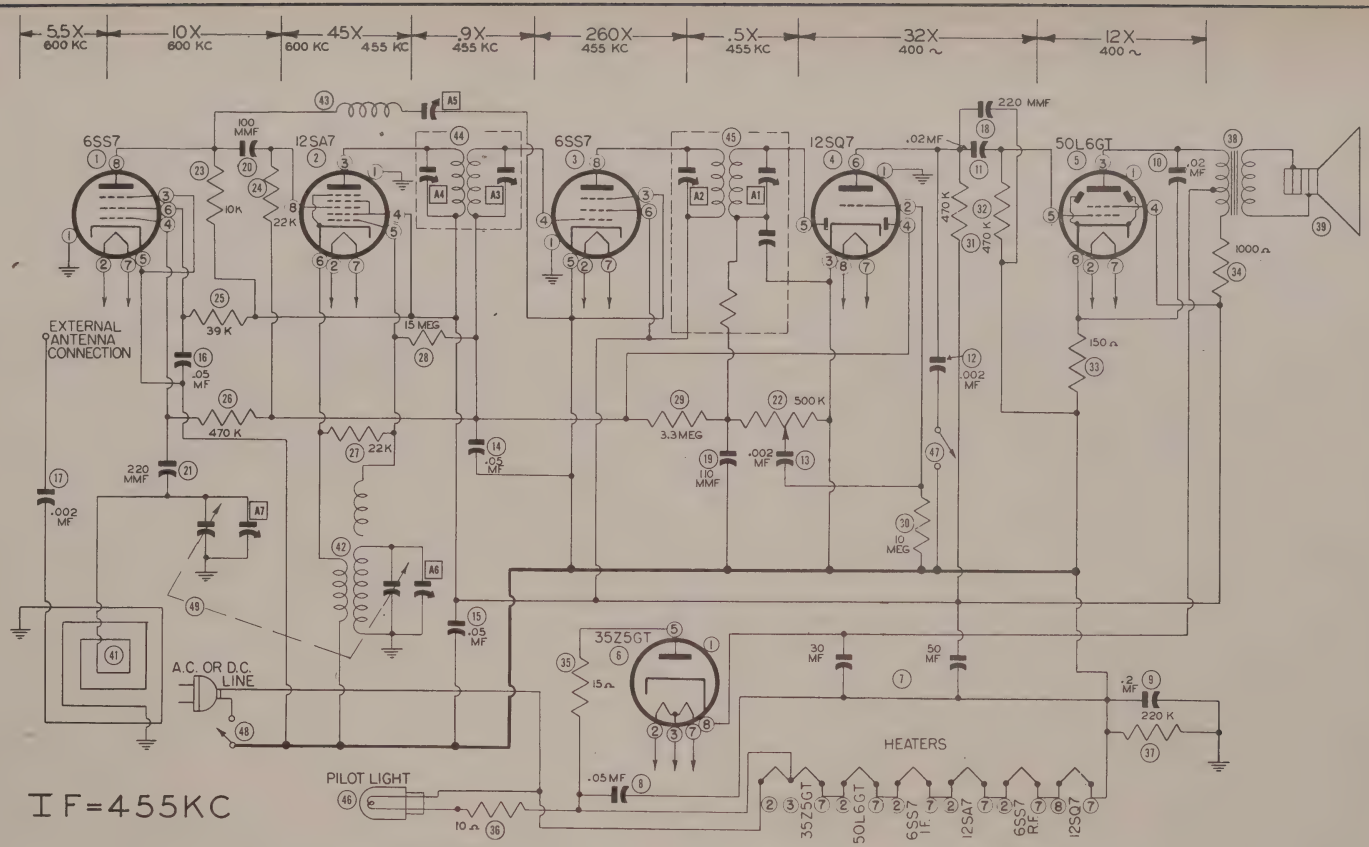
ITEM No.	PART NAME	EMERSON PART No.	NOTES
47	Tone Switch		
48	On-Off Switch		
49	Tuning Cap.	900070	(27-385 MMF, 22-185 MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0V.	16 V.AC	0V.	-4 V.DC	0V.	63 V.DC	111 V.AC	60 V.DC
2	12SA7	0V.	28 V.AC	90 V.DC	90 V.DC	-4.9 V.DC	0V.	16 V.AC	-5 V.DC
3	6SS7	0V.	28 V.AC	0V.	-6 V.DC	0V.	90 V.DC	35 V.AC	90 V.DC
4	12SQ7	0V.	-6 V.DC	0V.	-6 V.DC	-4 V.DC	55 V.DC	0V.	11 V.AC
5	50L6GT	0V.	35 V.AC	110 V.DC	90 V.DC	0V.	0V.	87 V.AC	6 V.DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	117 V.DC	111 V.AC	113 V.AC	87 V.AC	117 V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	180 KΩ	19 Ω	0Ω	3 MEG.	0Ω	69 KΩ	12 Ω	40 KΩ
2	12SA7	180 KΩ	30 Ω	30 KΩ	30 KΩ	20 KΩ	.8 Ω	19 Ω	3 MEG.
3	6SS7	180 KΩ	30 Ω	0Ω	2.5 MEG.	0Ω	30 KΩ	35 Ω	30 KΩ
4	12SQ7	180 KΩ	10 MEG.	0Ω	2.5 MEG.	520 KΩ	500 KΩ	0Ω	12 Ω
5	50L6GT	INF.	35 Ω	30 KΩ	30 KΩ	370 KΩ	0Ω	80 Ω	120 Ω
6	35Z5GT	INF.	108 Ω	103 Ω	30 KΩ	115 Ω	108 Ω	80 Ω	30 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

GAROD
MODELS 5D, 5D-2

GAROD
MODELS 5D, 5D-2

GAROD MODEL 5D-2

TRADE NAME	Garod, Models 5D, 5D-2
MANUFACTURER	Garod Radio Corporation, 70 Washington St., Brooklyn, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter; 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output, 117Z3 Rect.
POWER SUPPLY	105-125 Volts AC-DC or (5) 1½ Volt "A" Batteries (Eveready #950 or equiv.) and (1) 67½ Volt "B" Battery (Eveready #467 or equiv.)
RATING	.155 Amp. @ 117 Volts AC or 61 MA @ 7.7 Volts DC & 8 MA @ 67½ Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Whenever possible use battery power for alignment. If a-c power is used, use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into set. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output. Install in cabinet and check calibration. If necessary remove plugs in end of case and repeat last two steps to correct calibration.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GAROD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	
5	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GAROD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	70	150	5.400-3						■ Filter
B	30	150							▲ "
C	150	25							Filament Bypass
7	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
8	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Filament Bypass
9	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	" "
10	.005	400		S-6-005	TC-25	484-005	DT6D5	TP406	Output Plate Bypass
11	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
12	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Audio Screen Bypass
13	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
14	.02	200		S-4-02	TC-12	484-02	DT4S2	TP423	AVC Filter
15	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	Screen Bypass
16	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Ant. Coupling
17	50	500		MO.5-45	1FM-45	1468-00005	5W5Q5	MO225	Audio Plate Bypass
18	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MO235	IF Bypass Diode

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	1	8.200-2	MR4G2#	D13-137#	AM-63-2#	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions.
C	Switch		" "	M27	42	SW-A2	" " " "

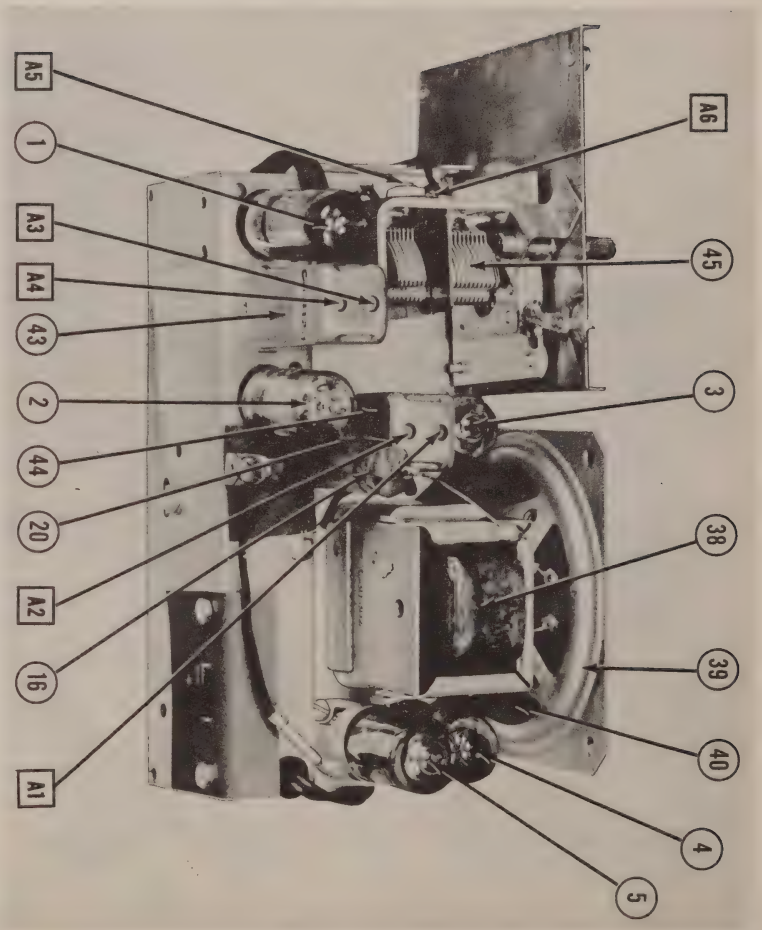
#Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	IRC PART No.	IDENTIFICATION CODES
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
21	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
22	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. IF Grid
23	4700Ω	½		BTS-4700	Yl.-Vi.-Red Voltage Dropping
24	1 Meg.	½		BTS-1 Meg.	Brn.-Blk.-Grn. AVC Network
25	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
27	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
28	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Output Grid
29	270Ω	½		BW-½-270	Red-Vi.-Br. Bias
30	680Ω	½		BTS-680	Blue-Gray-Br. Filament String-See Note 1
31	470Ω	½		BTS-470	Yl.-Vi.-Br. Filament String
32	1000Ω	½		BTS-1000	Br.-Blk.-Red Filament String
33	68Ω	½		BW-½-68	Blue-Gray-Blk. Filament String-See Note 2
34	1300Ω	5			Filament String
35	925Ω	5			Filter
36	3300Ω	1		BTA-3300	Or.-Or.-Red Filter
37	22Ω	½		BW-½-22	Red-Red-Blk. Surge Limiter

Note 1 - Some models use a 3900Ω resistor in this application.
Note 2 - Not used in models using 680Ω for Item 30.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GAROD PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	6000Ω	3.3Ω	280Ω	.4Ω	Part of 30.302	A-3875*	T22S48*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

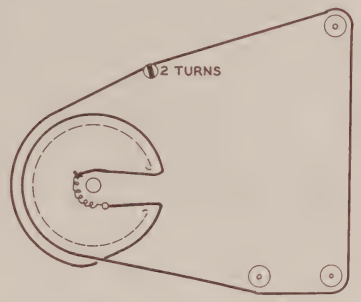
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GAROD PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
39	PM	3.3Ω	30.302			
	CONE DIA.	VC DIA.				
40	3½"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.	
41	Loop Ant.		1.5Ω	1.405		
42	Osc. Coil	2Ω	6.6Ω	1.414	14-1040	
43	Input IF	24Ω	19Ω	1.412	16-6668	
44	Output IF	44Ω	43Ω	1.413	16-6669	

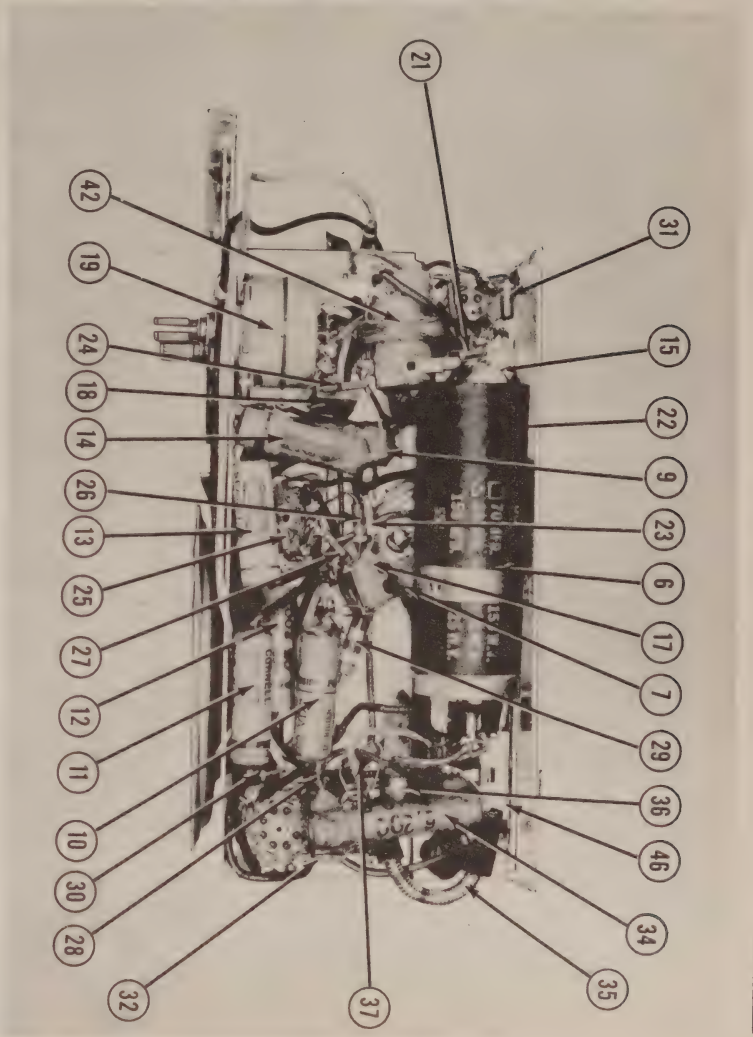
MISCELLANEOUS

ITEM No.	PART NAME	GAROD PART No.	NOTES
45	2 Gang Var. Cap	2-203	(23-386 MMF, 33-203 MMF)
46	AC-DC-Batt Sw.		3PDT



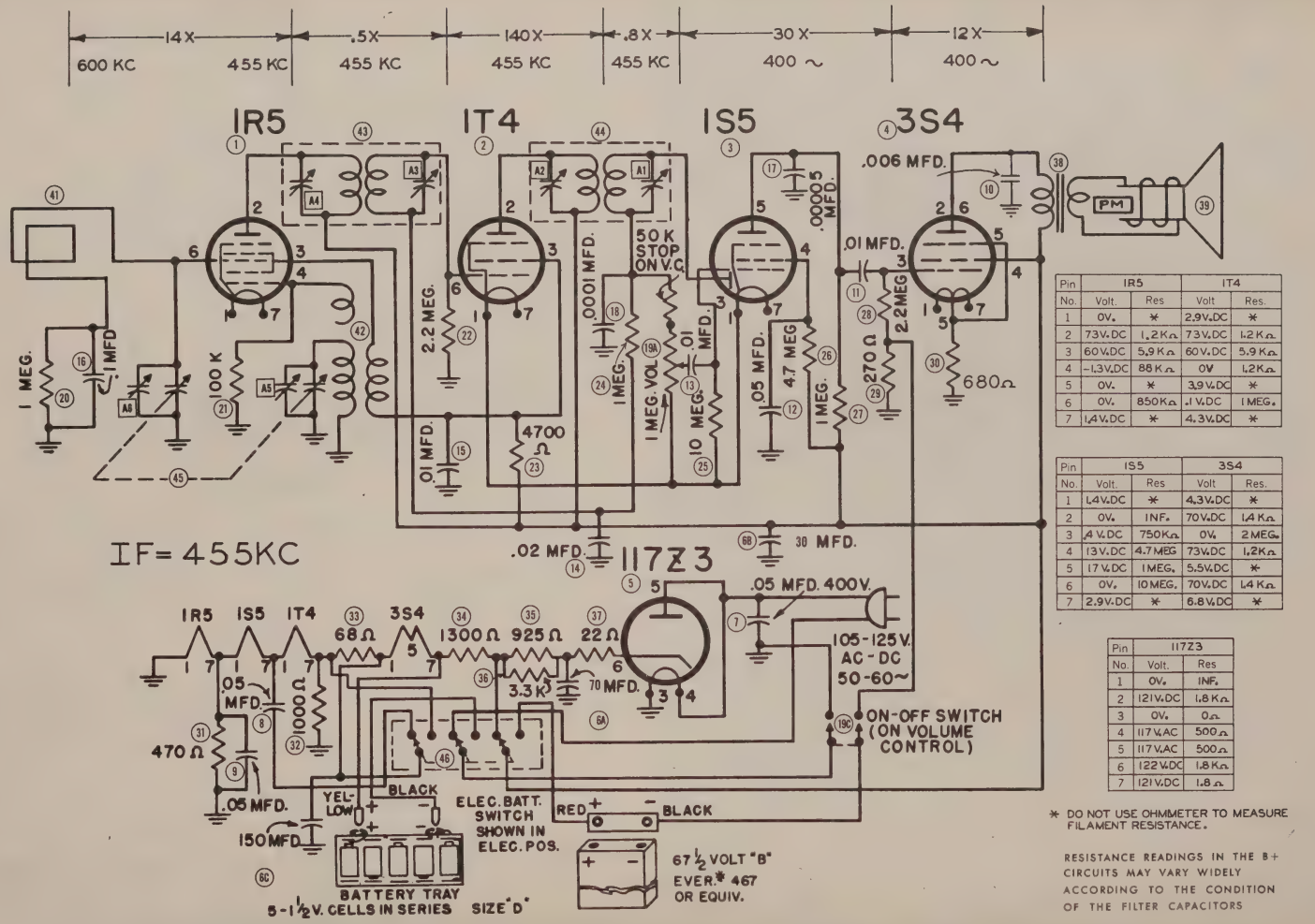
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GAROD MODELS SD-SD-2

GAROD MODELS SD-SD-2



Pin No.	1R5 Volt.	1R5 Res	1T4 Volt	1T4 Res.
1	0V.	*	2.9V.DC	*
2	73V.DC	1.2Kᴀ	73V.DC	1.2Kᴀ
3	60V.DC	5.9Kᴀ	60V.DC	5.9Kᴀ
4	-1.3V.DC	88Kᴀ	0V	1.2Kᴀ
5	0V.	*	3.9V.DC	*
6	0V.	850Kᴀ	.1V.DC	1MEG.
7	1.4V.DC	*	4.3V.DC	*

Pin No.	1S5 Volt.	1S5 Res	3S4 Volt	3S4 Res.
1	1.4V.DC	*	4.3V.DC	*
2	0V.	INF.	70V.DC	1.4Kᴀ
3	.4V.DC	750Kᴀ	0V.	2MEG.
4	13V.DC	4.7MEG	73V.DC	1.2Kᴀ
5	17V.DC	1MEG.	5.5V.DC	*
6	0V.	10MEG.	70V.DC	1.4Kᴀ
7	2.9V.DC	*	6.8V.DC	*

Pin No.	117Z3 Volt.	117Z3 Res
1	0V.	INF.
2	121V.DC	1.8Kᴀ
3	0V.	0ᴀ
4	117V.AC	500ᴀ
5	117V.AC	500ᴀ
6	122V.DC	1.8Kᴀ
7	121V.DC	1.8ᴀ

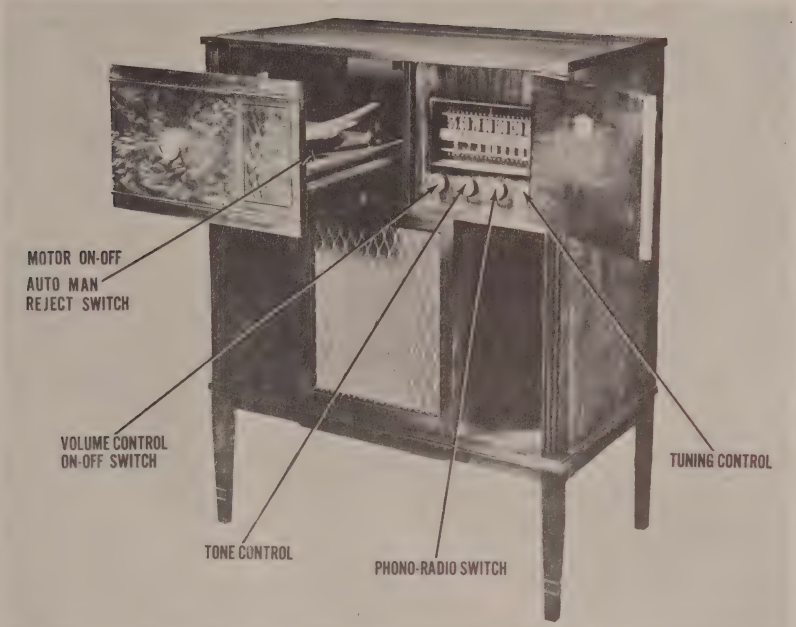
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE **472-12**

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GAROD MODEL 6DPS-A

TRADE NAME	Garod Models 6DPS, 6DPS-A "The Sheraton"		
MANUFACTURER	Garod Radio Corp., 70 Washington St., Brooklyn, N.Y.		
TYPE SET	AC Operated Combination Automatic Phono - 2 Band Superheterodyne Receiver with Self Contained Loop Antenna		
TUBES (SIX)	Types, 6SQ7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Z4 Rectifier		
POWER SUPPLY	105-125 Volts AC	RATING	.620 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1650KC	SHORT WAVE	5.7-18.5 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Set volume control at maximum volume, tone control fully counter-clockwise and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	BC (Fully counter-clockwise)	High freq. end. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
	Loop	1650KC	"	"	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output
	"	1500KC	"	Tune for maximum output.	"	A6	"
	"	600KC	"	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps until no further improvement can be made.
400Ω	High side to ext. ant. (green)lead. Low side to grnd. lead.	18.5MC	SW (Middle position)	High freq. end (Variable fully open)	"	A8	Adjust for maximum output
400Ω	"	16.0MC	"	Tune for maximum output	"	A9	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GAROD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SG7	6SG7	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Z4	5Z4	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GAROD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	450	5.400-4	DY-2x20-450	EL-220	AP44J	UP6BJ38	FP234	■ Filter
B	20	450							▲ "
8	10	25	5.413	M-10-25	TA-10	PRS25-10	BR102A	TC22	Cath. Bypass
9	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Bypass
10	.005	600		S-6-005	TC-25	684-005	DT6D5	TP405	Output Plate Bypass
11	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
12	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	Tone Compensation
13	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling ‡
14	.015	200		S-4-02	TC-12	484-02	DT4S2	TP423	Tone Compensation
15	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
16	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	IF Cath. Bypass *
17	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Screen Bypass
18	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	RF Bypass Pwr. Supp.
19	.02	200		S-4-02	TC-12	484-02	DT4S2	TP423	AVC Filter
20	.02	200		S-4-02	TC-12	484-02	DT4S2	TP423	" "
21	250	500		M0.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
22	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Diode Filter
23	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
24	3850	300							Fixed Padder SW
25	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
26	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling

*Not used in all models.
‡Install shield on replacement.

CONTROLS

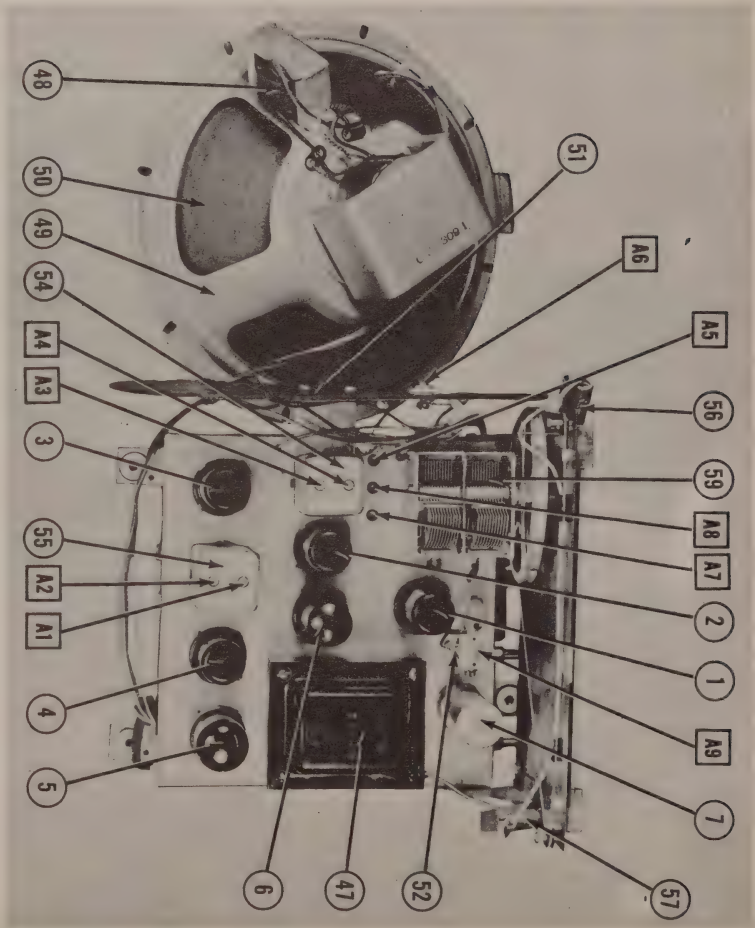
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
27A	1 Meg.	1	8.202-1	TM243	D18-137XX#	AT-112	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 27A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
28A	1 Meg.	1	8.200-5	UM159	D11-137	AM-61-S	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 28A per instructions

#Use 2nd tap only.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	IRC PART No.	IDENTIFICATION CODES
29	1 Meg.	‡		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
30	2200Ω	‡		BTS-2200	Red-Red-Red RF Plate Load
31	470KΩ	‡		BTS-470K	Yl.-Vi.-Yl. Converter Grid
32	22KΩ	‡		BTS-22K	Red-Red-Or. Oscillator Grid
33	47Ω	‡		BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
34	470Ω	‡		BTS-470	Yl.-Vi.-Br. IF Cathode
35	470Ω	‡		BTS-470	Yl.-Vi.-Br. IF Cathode SW
36	15KΩ	2		BT-2-15K	Br.-Grn.-Or. Voltage Dropping
37	1 Meg.	‡		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
38	47KΩ	‡		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
39	1 Meg.	‡		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
40	12 Meg.	‡		BTS-12 Meg.	Br.-Red-Blue AF Grid
41	220KΩ	‡		BTS-220K	Red-Red-Yl. AF Plate Load
42	15KΩ	‡		BTS-15K	Br.-Grn.-Or. Tone Compensation
43	470KΩ	‡		BTS-470K	Yl.-Vi.-Yl. Output Grid
44	390Ω	1		BW-1-390	Or.-white-Br. Output Cathode
45	150KΩ	‡		BTS-150K	Br.-Grn.-Yl. Series Phono
46	1 Meg.	‡		BTS-1 Meg.	Br.-Blk.-Grn. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GAROD PART No.	STANCOR PART No.	THORDARSON PART No.	
47	117V AC @ .32A	650V CT @ .078A	5V AC @ 2.0A	6.2V AC @ 2.0A	9.201	P-6012	T22R04	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GAROD PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
48	4500Ω	3.7Ω	300Ω	.75Ω	Part of 30.309	A-3877	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	GAROD PART No.	JENSEN PART No.		
49	1000Ω	3.7Ω	30.309	ST-441† Mod.G10-RS		†Parallel field with 5000Ω 2 Watt resistor.
	CONE DIA.	VC DIA.				
50	9½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

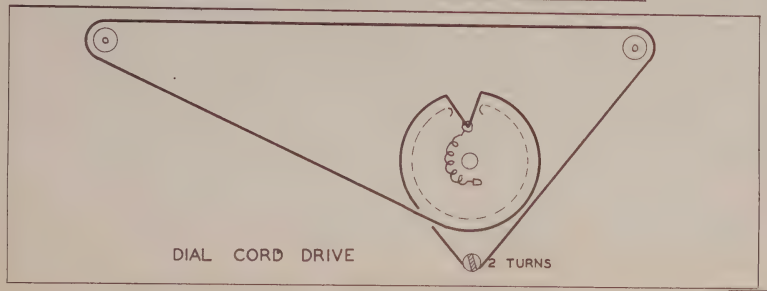
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.	
51	Loop Ant.	.2Ω	1.5Ω	1.419		
52	SW Ant. Coil	1.7Ω	0Ω	1.418		
53A	BC Osc. Coil	1Ω	9.3Ω	1.417		
B	SW " "	0Ω				
54	Input IF	46Ω	43Ω	1.259	16-6655	
55	Output IF	42Ω	44Ω	1.409	16-6660	

DIAL LIGHT

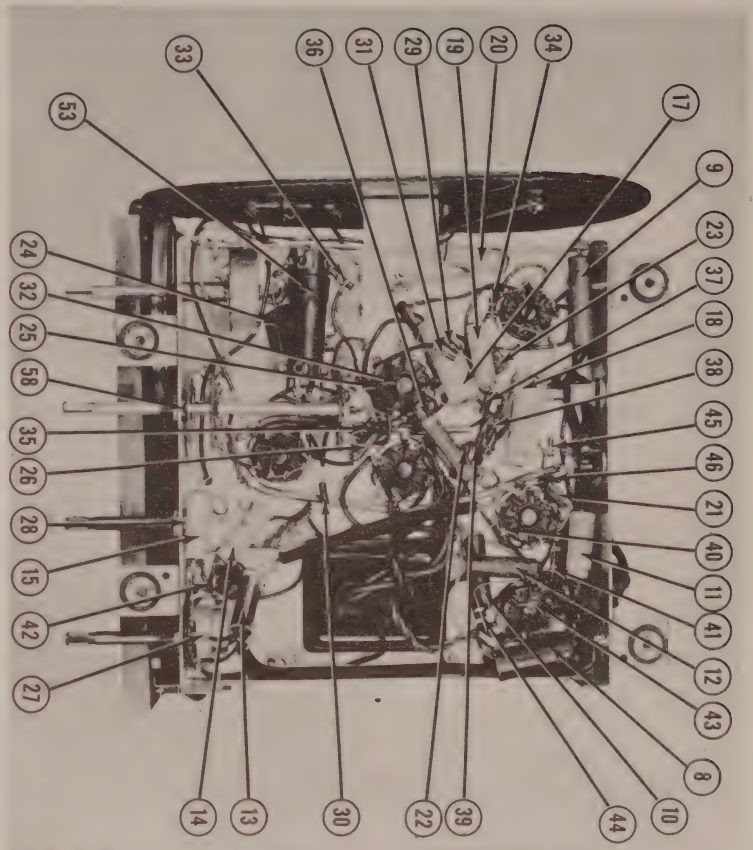
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GAROD PART No.		
56	Bayonet	6-8	0.25	Blue			Type 44
57	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	GAROD PART No.	NOTES
58	Band Switch	11.202	
59	2 Gang Var. Cap. Trimmer Assby.	2.159 4.101	(13-458 MMF, 13-458 MMF)

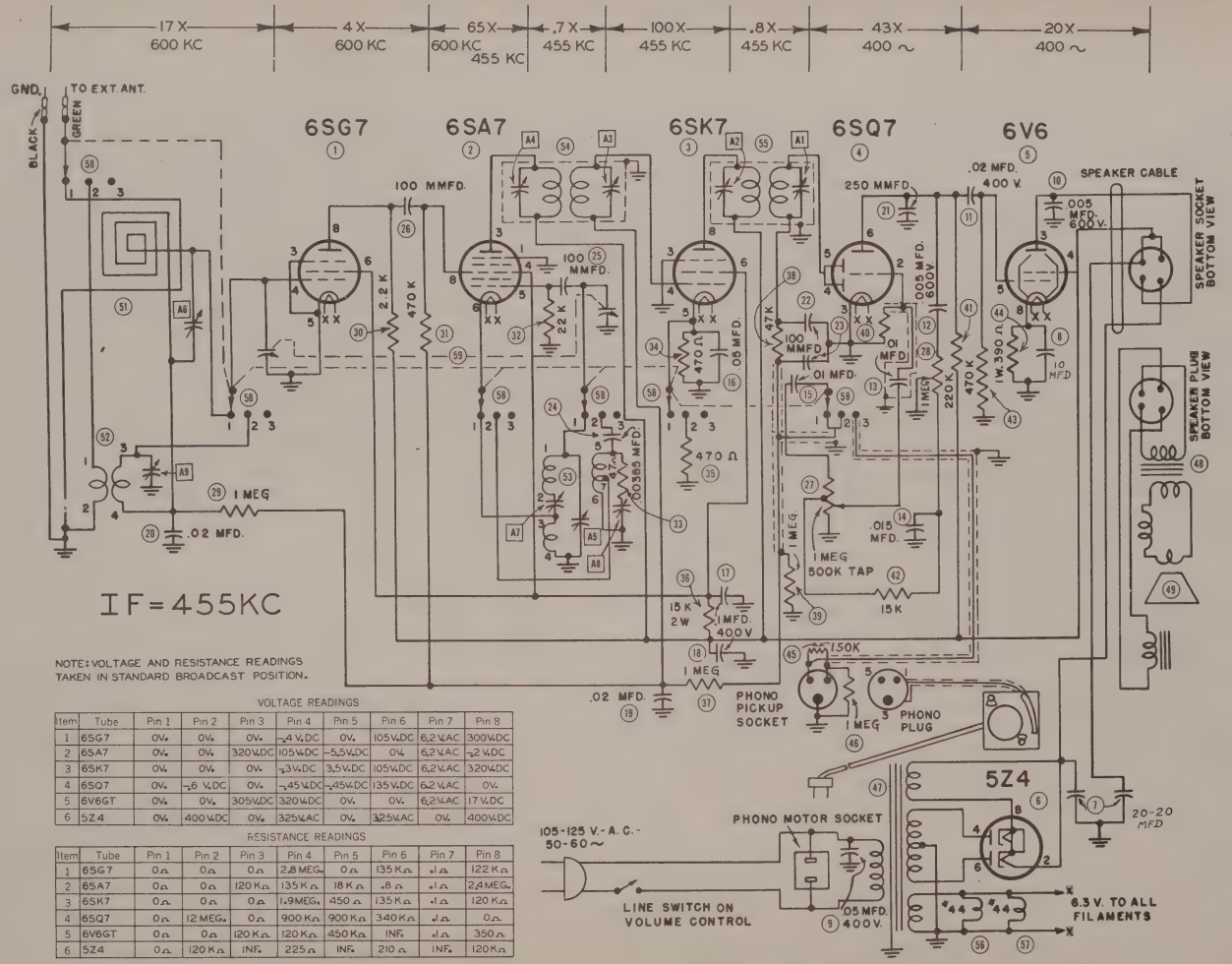


CHASSIS—BOTTOM VIEW



GAROD MODELS 6DP5, 6DP5-A

GAROD MODELS 6DP5, 6DP5-A



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	−4 V.DC	0V.	105 V.DC	6.2 V.AC	300 V.DC
2	6SA7	0V.	0V.	320 V.DC	105 V.DC	−5.5 V.DC	0 V.	6.2 V.AC	−2 V.DC
3	6SK7	0V.	0V.	0V.	+3 V.DC	3.5 V.DC	105 V.DC	6.2 V.AC	320 V.DC
4	6SQ7	0V.	−6 V.DC	0V.	−45 V.DC	−45 V.DC	135 V.DC	6.2 V.AC	0V.
5	6V6GT	0V.	0V.	305 V.DC	320 V.DC	0V.	0V.	6.2 V.AC	17 V.DC
6	5Z4	0V.	400 V.DC	0V.	325 V.AC	0V.	325 V.AC	0V.	400 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0 Ω	0 Ω	0 Ω	2.8 MEG.	0 Ω	135 KΩ	∞ Ω	122 KΩ
2	6SA7	0 Ω	0 Ω	120 KΩ	135 KΩ	18 KΩ	.8 Ω	∞ Ω	2.4 MEG.
3	6SK7	0 Ω	0 Ω	0 Ω	1.9 MEG.	450 Ω	135 KΩ	∞ Ω	120 KΩ
4	6SQ7	0 Ω	12 MEG.	0 Ω	900 KΩ	900 KΩ	340 KΩ	∞ Ω	0 Ω
5	6V6GT	0 Ω	0 Ω	120 KΩ	120 KΩ	450 KΩ	INF.	∞ Ω	350 Ω
6	5Z4	0 Ω	120 KΩ	INF.	225 Ω	INF.	210 Ω	INF.	120 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

472-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL TELEVISION
MODEL 21A4

GENERAL TELEVISION
MODEL 21A4

GENERAL TELEVISION MODEL 21A4

TRADE NAME	General Television, Model 21A4
MANUFACTURER	General Television & Radio Corp., 2701 Lehmann St., Chicago, Ill.
TYPE SET	Battery Operated Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FOUR)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output.
POWER SUPPLY	1.5 Volt "A" Battery and 90 Volt "B" Battery in Pack Form (Eveready #748 "A-B" or Equiv.)
RATING	260 MA @ 1.6 Volts DC and 12 MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer in a horizontal position. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	465KC	High freq.end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1500KC	1500KC	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	"	"	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GEN. TELEVISION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1LA6	1LA6	5AD	
2	IF Amp.	1LN5	1LN5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	3LF4	3LF4	6BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GEN. TELEVISION PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	10	150		M-10-150	UT-121	PRS150-12	BR1215	TC42	Pwr. Supp. Bypass
6	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	Output Plate Bypass
7	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
8	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	" "
9	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	AVC Filter
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	IF Grid Bypass
11	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Conv. Screen Bypass
12	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Audio Plate Bypass
13	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.
14	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. TELE. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	2 Meg.	1	20-4	MR55	D13-139	M-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

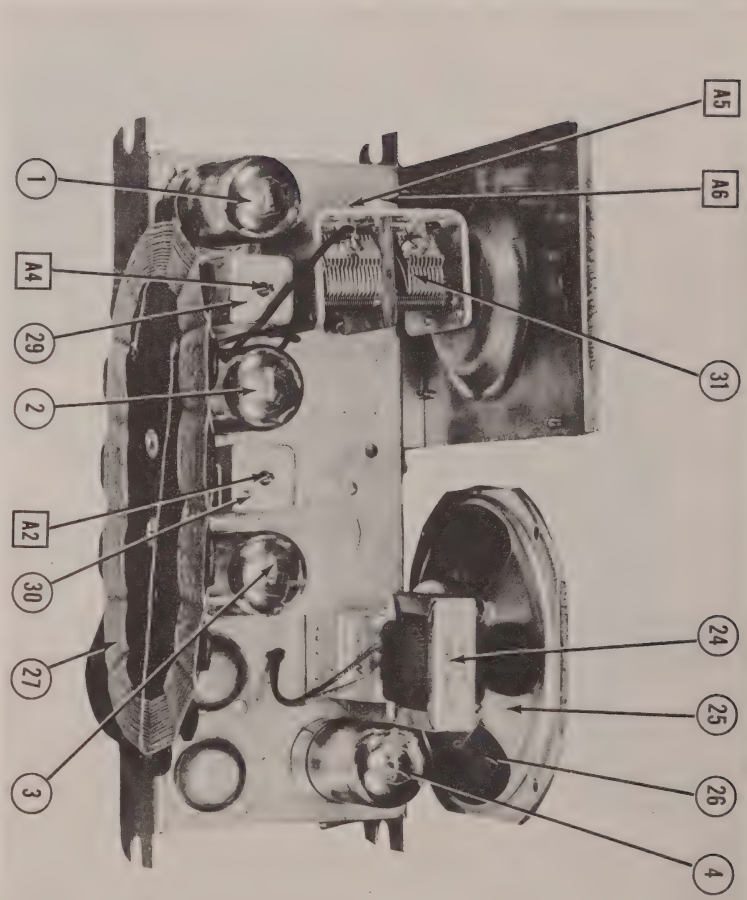
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. TELEVISION PART No.	IRC PART No.	IDENTIFICATION CODES
16	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Oscillator Grid
17	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Screen Dropping
18	6 Meg.	½		BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
19	6 Meg.	½		BTS-5.6 Meg.	Blue-Blk.-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
23	390Ω	½		BW-½-390	Or.-White-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GEN. TELE. PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
24	7000Ω	3.1Ω	430Ω	.5Ω	TA-112-447	A-3878*	T22S47*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

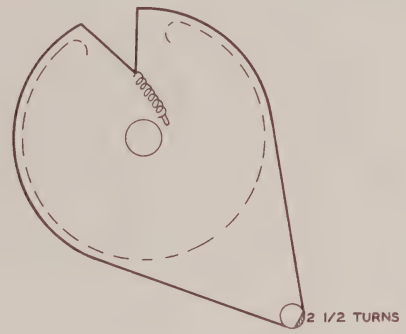
ITEM No.	RATINGS		REPLACEMENT DATA: GEN. TELEVISION PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
25	FIELD PM	VC IMP. 3.1Ω	8-3W	ST-105† Mod. P5-X		†Fabricate new mounting bracket.
26	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: GEN. TELEVISION PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
27	Loop Ant.		1.5Ω			
28	Osc. Coil	1.5Ω	6Ω		14-1040	
29	Input IF	10Ω	10Ω		16-6668	
30	Output IF	10.5Ω	10Ω		16-6669	

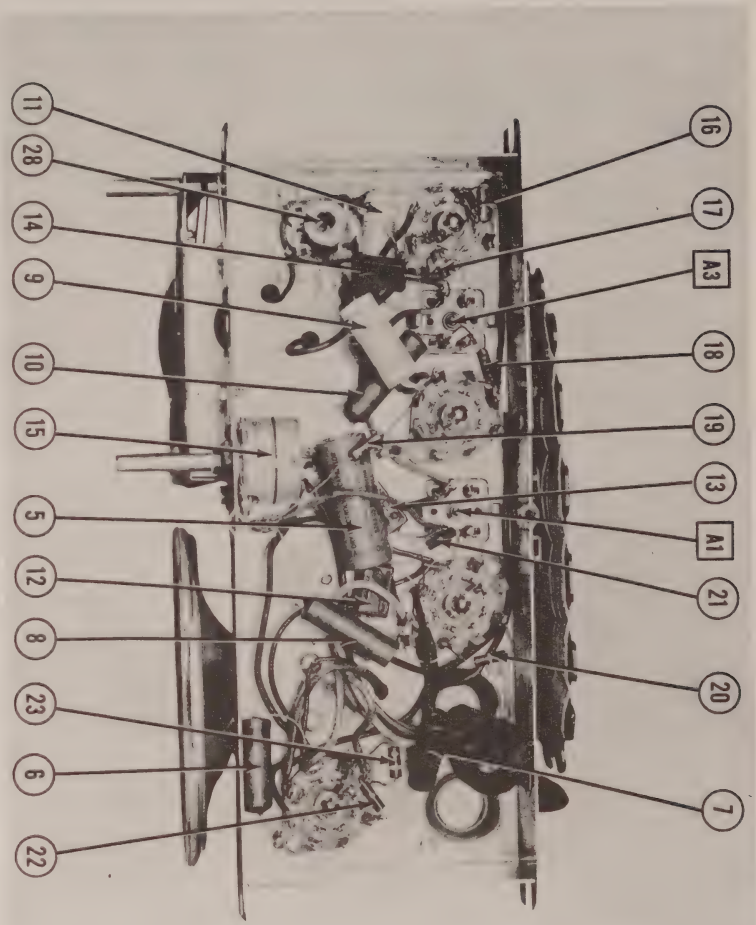
MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
31	2 Gang Var. Cap		(25-474 MMF, 33-191 MMF)



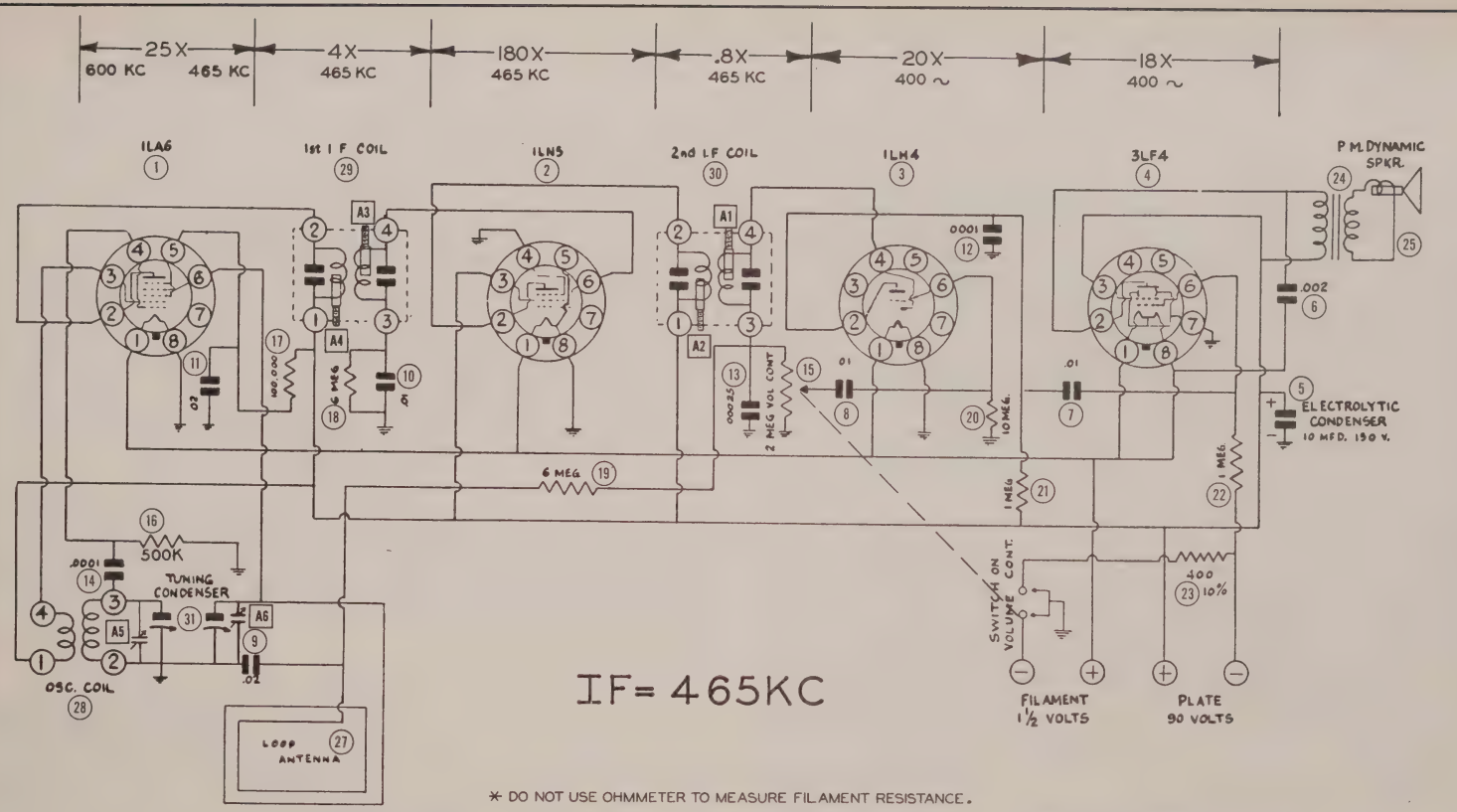
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GENERAL TELEVISION
MODEL 21A4

GENERAL TELEVISION
MODEL 21A4



* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6 V.DC	90 V.DC	90 V.DC	0V.	32 V.DC	0V.	0V.	0V.
2	1LN5	1.6 V.DC	90 V.DC	90 V.DC	0V.	0V.	0V.	0V.	0V.
3	1LH4	1.6 V.DC	55 V.DC	90 V.DC	-1 V.DC	0V.	0V.	0V.	0V.
4	3LF4	1.6 V.DC	86 V.DC	90 V.DC	0V.	-5 V.DC	-1.2 V.DC	0V.	1.6 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	2.5 MEG.	2.5 MEG.	400 KΩ	2.6 MEG.	9 MEG.	INF.	*
2	1LN5	*	2.5 MEG.	2.5 MEG.	0Ω	*	7 MEG.	9 MEG.	*
3	1LH4	*	3.5 MEG.	2.5 MEG.	1.7 MEG.	INF.	10 MEG.	INF.	*
4	3LF4	*	2.5 MEG.	2.5 MEG.	0Ω	360Ω	1 MEG.	*	*

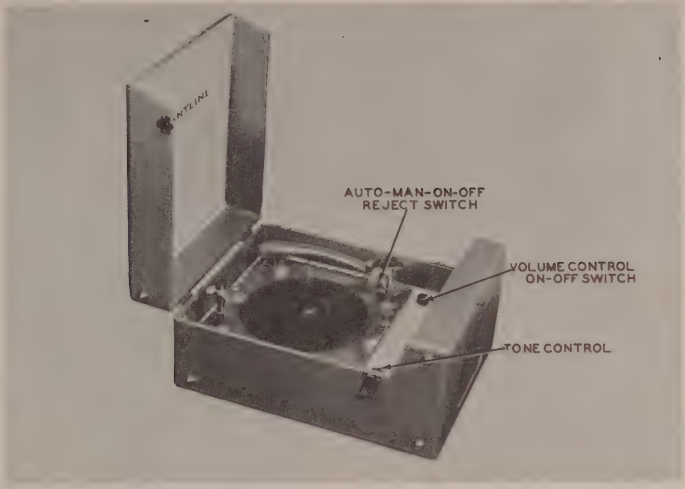
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-14

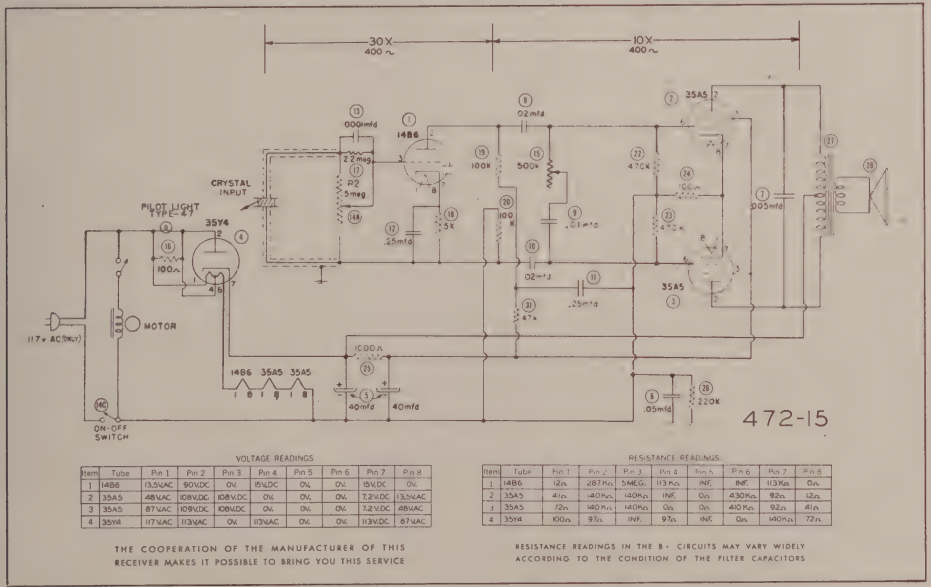
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



GRANTLINE MODEL 641

TRADE NAME	Grantline Model 641
SUPPLIER	W.T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET	AC Operated Record Player with 4 Tube Amp. and speaker.
TUBES (FOUR)	Types, 14B6 Audio Amp. & Phase Inverter, 2 - 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC .285 Amp. @ 117V AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	13.5VAC	90VDC	0V.	15VDC	0V.	0V.	15VDC	0V.
2	35A5	48VAC	108VDC	108VDC	0V.	0V.	7.2VDC	13.5VAC	
3	35A5	87VAC	109VDC	108VDC	0V.	0V.	7.2VDC	48VAC	
4	35Y4	117VAC	113VAC	0V.	113VAC	0V.	0V.	113VDC	87VAC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	12Ω	287KΩ	5MEG.	113KΩ	INF.	INF.	113KΩ	0Ω
2	35A5	41Ω	140KΩ	140KΩ	INF.	0Ω	430KΩ	92Ω	12Ω
3	35A5	72Ω	140KΩ	140KΩ	0Ω	0Ω	410KΩ	92Ω	41Ω
4	35Y4	100Ω	97Ω	INF.	97Ω	INF.	0Ω	140KΩ	72Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF & Phase Inv.	14B6	14B6	8W	
2	Power Output	35A5	35A5	6MA	
3	" "	35A5	35A5	6AA	
4	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150	A25.019	M-2x40-150	TA-440	PRSA150-40-40	BRL4415	2N511	Filter - Red
B	40	150						" "	" "
6	.05	600		S-6-05	TC-15	684-05	DT6S5	TP426	Line Isolation
7	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	35A5 Plate Bypass
8	.02	200		S-4-02	TC-12	484 02	DT4S2	TP423	Audio Coupling
9	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Tone Compensation
10	.02	200		S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
11	.25	200		S-4-25	TC-25	484-.25	DT4P25	TP430	Audio Plate Decoup.
12	.25	200		S-4-25	TC-25	484-.25	DT4P25	TP430	Audio Catn. Bypass
13	100	50		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Phono. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
14A	500KΩ	1	A-S.067	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions
C	Switch		" "	M28	41	SW-A	" " " " "
15A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control-Late production
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
15A	1 Meg.	1	A-5.065	MR53	D13-137	M-63-Z	Tone Control-Early production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
16	100Ω	1		BT-1-100	Br.-Blk.-Br. Pilot Light Shunt
17	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Series Phono
18	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
19	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Plate Load
20	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode
21	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inverter Plate Decoupling
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	100Ω	1		BT-1-100	Br.-Blk.-Br. Output Cathode
25	1000Ω	1		BT-1-1000	Br.-Blk.-Red Filter
26	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation

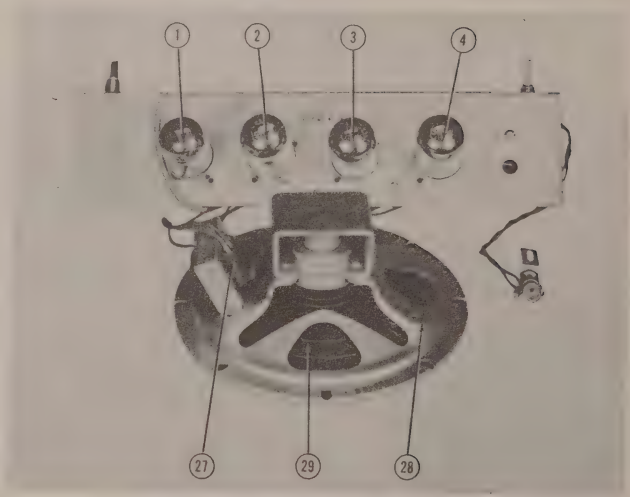
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
27	2000Ω CT	3.3Ω	280Ω	.35Ω	Part of C-11.039	A-3856‡	T22S47		‡Universal transformer

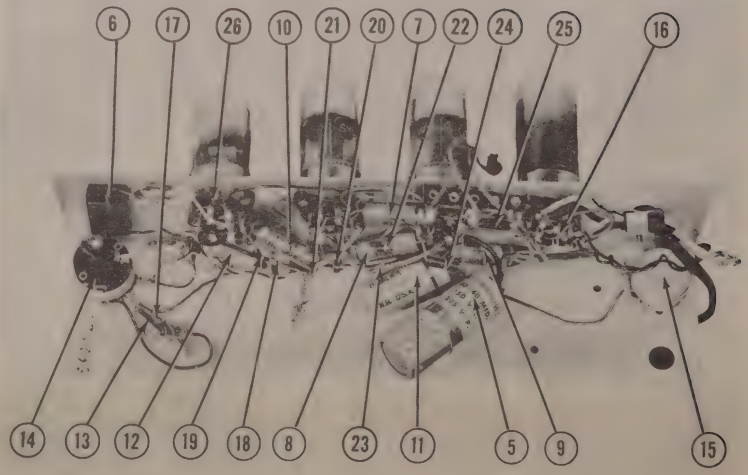
SPEAKER

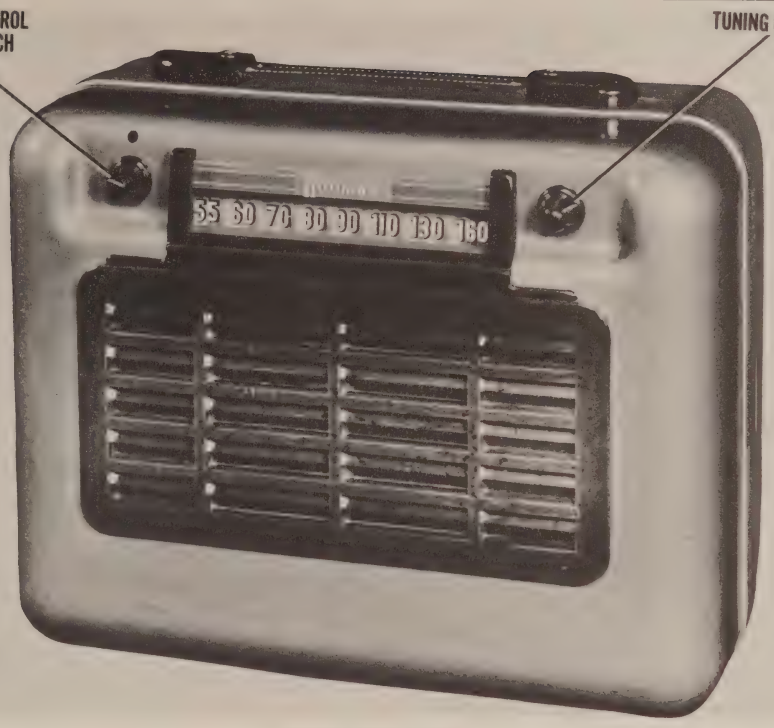
ITEM No.	RATINGS		REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-109		
28A	1K	2.3Ω	C-11.039	Mod. P6-W		
B			C-11.038			Alternate Speaker
	CONE DIA.	VC DIA.				
28	6"	2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





HOFFMAN MODEL A-700

TRADE NAME	Hoffman, Model A-700 (Ch. 110S)
MANUFACTURER	Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif.
TYPE SET	Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Amp.
POWER SUPPLY	117 Volts AC-DC or 9 Volt "A" Supply and 90 Volt "B" Supply
RATING	.180 Amps. @ 117V AC or 53MA @ 9.3V DC & 21MA @ 93V DC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power for alignment if available. If a-c power is used, use an isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #6 of 1R5. Low side to B-.	455KC	High freq.end (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6,A7	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	4201	DY-5030-150	EL-35	AF1010D	UF6BJ34	FP214	■ Filter
B	30	150				"			▲ "
7	100	25	4204	M-100-50	UHC-102	PRS25-100	BRH251	TC2501	Filament Bypass
8	100	25	4204	M-100-50	UHC-102	PRS25-100	BRH251	TC2501	" "
9	.05	400	4101	S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
10	.005	600	4102	S-6-005	TC-25	684-005	DT6D5	TP408	Output Plate Bypass
11	.005	600	4102	S-6-005	TC-25	684-005	DT6D5	TP408	Audio Coupling
12	.005	600	4102	S-6-005	TC-25	684-005	DT6D5	TP408	Audio Screen Bypass
13	.05	200	4100	S-4-05	TC-15	484-05	DT4S5	TP426	Filament Bypass
14	.005	600	4102	S-6-005	TC-25	684-005	DT6D5	TP408	Audio Coupling
15	.01	400	4112	S-4-01	TC-11	484-01	DT4S1	TP421	IF Grid Bypass
16	.05	200	4100	S-4-05	TC-15	484-05	DT4S5	TP426	RF Bypass Pwr. Supp.
17	.05	200	4100	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
18	.05	200	4100	S-4-05	TC-15	484-05	DT4S5	TP426	Screen Bypass
19	.2	200	4108	S-4-2	TC-2	484-.2	DT4P2	TP429	Filament Bypass
20	.01	400	4112	S-4-01	TC-11	484-01	DT4S1	TP421	AVC Filter
21	.2	200	4108	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
22	100	500	4000	M0.5-31	1FM-31	1468-0001	SW5T1	MC235	Audio Plate Bypass
23	100	500	4000	M0.5-31	1FM-31	1468-0001	SW5T1	MC235	IF Bypass Diode
24	47	500	4009	M0.5-45	1FM-45	1468-00005	SW5Q5	MC225	Osc. Grid Capacitor
25	100	500	4000	M0.5-31	1FM-31	1468-0001	SW5T1	MC235	RF Coupling
26	15	500		M0.5-41	MS-415	1468-00001	SW5Q1	MC215	Fixed Trimmer

CONTROLS

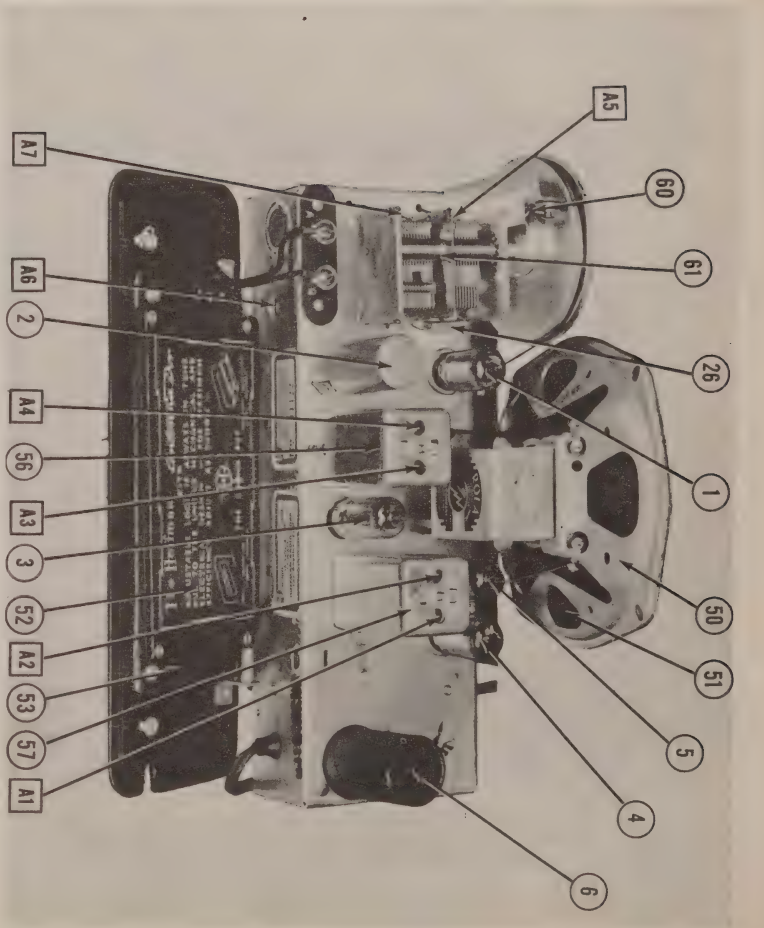
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
27A	1 Meg.	1	4808	MR63	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions.
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES
28	3.3 Meg.	½	4535	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	820Ω	½	4533	BTS-820	Gray-Red-Br. Filament String
31	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Line Isolation
32	1 Meg.	½	4513	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
33	100KΩ	½	4511	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
34	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. IF Grid
35	3900Ω	½	4527	BTS-3900	Or.-White-Red Voltage Dropping
36	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
37	100KΩ	½	4511	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
38	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
39	3.3 Meg.	½	4535	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
40	1 Meg.	½	4513	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
41	820Ω	½	4533	BTS-820	Gray-Red-Br. Filament String-See Note 1
42	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
43	1500Ω	½	4534	BTS-1500	Br.-Grn.-Red Filament String
44	47Ω	2	4532	BW-2-47	Yl.-Vi.-Blk. Rectifier Ballast
45	1000Ω	1	4522	BTA-1000	Br.-Blk.-Red Filter
46	1500Ω	6½	4701	AB-1500	Filament String
47	470Ω	1	4531	BTA-470	Yl.-Vi.-Br. Filament String
48	47Ω	2	4532	BW-2-47	Yl.-Vi.-Blk. Surge Limiter

Note 1 - Some models use 1000Ω resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		HOFFMAN PART No.	STANCOR PART No.	THORDAR'N PART No.	
	PRI.	SEC.	PRI.	SEC.				
49	9000Ω	3.4Ω	680Ω	.55Ω	5104	A-3879	TZ2S56	

SPEAKER

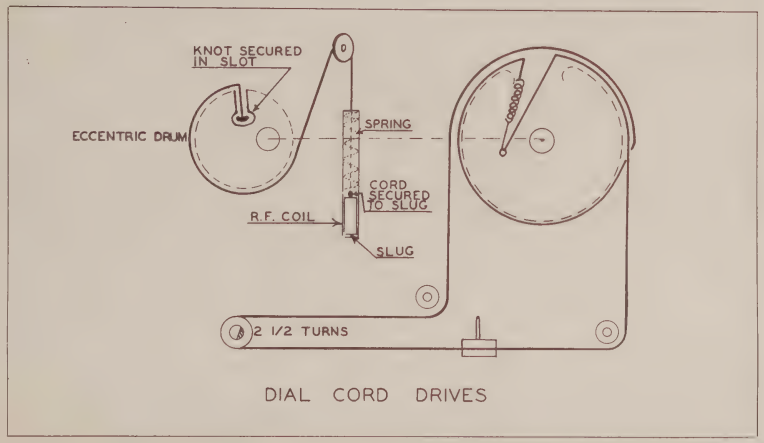
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			HOFFMAN PART No.	JENSEN PART No.	
50	FIELD PM	VC IMP. 3.4Ω	9019	ST-107* Mod. P5-V	*Drill new mounting holes
51	CONE DIA. 5-1/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
52	Loop Ant.		1.8Ω	55208		
53	Loop Load	.2Ω		5250		
54	RF Coil		4Ω	5245		
55	Osc. Coil	1.9Ω	5.2Ω	5244	14-1040	
56	Input IF	14.5Ω	14.5Ω	5242	16-6658	
57	Output IF	23Ω	23Ω	5243	16-6660	

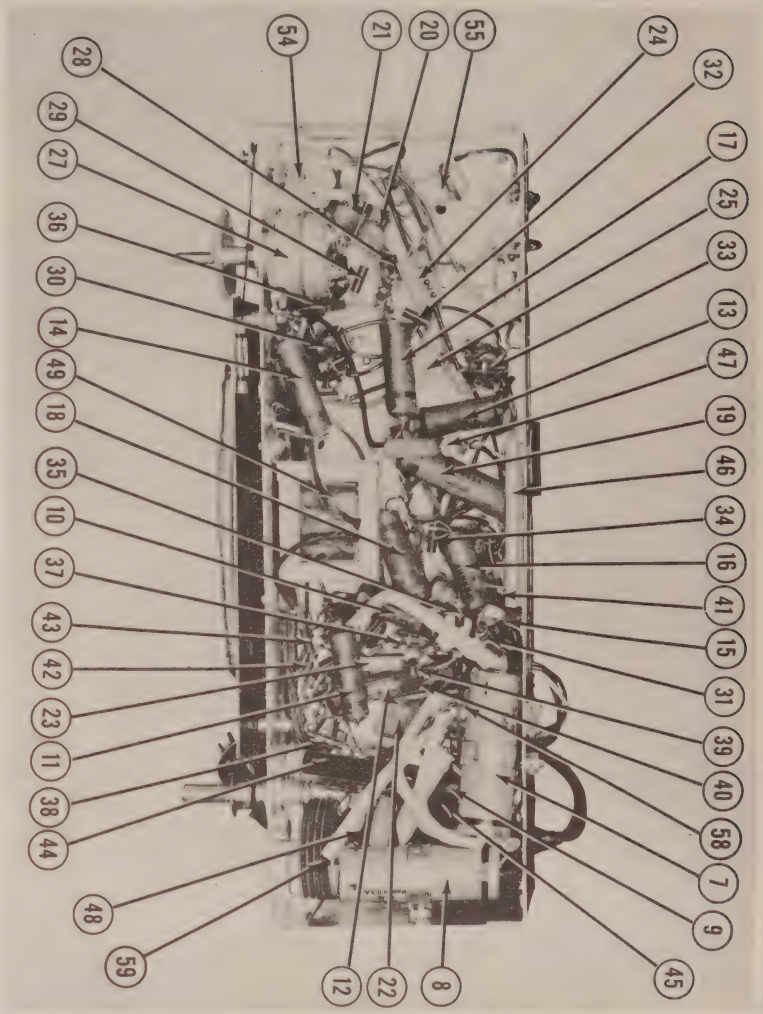
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
58	Switch		Power Change
59	Rectifier		Selenium
60	RF Tuning Assy.		
61	2 Gang Var. Cap	4401	(35-437 MMF, 35-233 MMF)



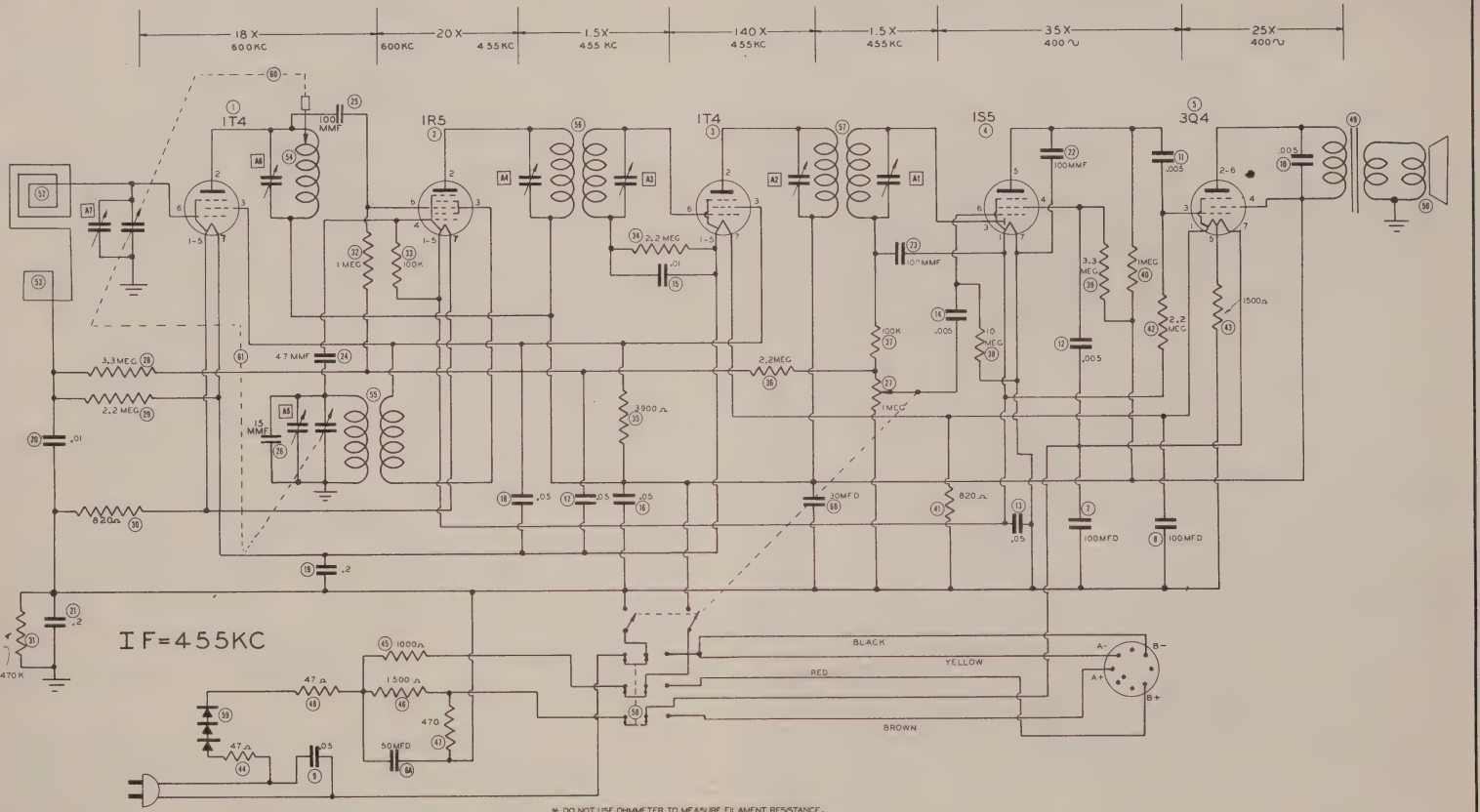
DIAL CORD DRIVES

CHASSIS—BOTTOM VIEW



HOFFMAN MODEL A-700

HOFFMAN MODEL A-700



* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	3.3 V.DC	92 V.DC	72 V.DC	0 V.	3.3 V.DC	3 V.DC	4.6 V.DC
2	1R5	1.8 V.DC	92 V.DC	72 V.DC	1.7 V.DC	1.8 V.DC	3 V.DC	3.3 V.DC
3	1T4	4.6 V.DC	92 V.DC	72 V.DC	3 V.DC	4.6 V.DC	4.8 V.DC	5.8 V.DC
4	1S5	1.8 V.DC	0 V.	1 V.DC	15 V.DC	10 V.DC	1 V.DC	0 V.
5	3Q4	5.8 V.DC	87 V.DC	1 V.DC	91 V.DC	7.1 V.DC	87 V.DC	8.4 V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	*	2.8 KΩ	6.7 KΩ	INF.	*	1.6 MEG.	*
2	1R5	*	2.8 KΩ	6.7 KΩ	83 KΩ	*	3 MEG.	*
3	1T4	*	2.8 KΩ	6.7 KΩ	2.5 MEG.	*	2.5 MEG.	*
4	1S5	*	0 Ω	940 KΩ	3.1 MEG.	790 KΩ	10 MEG.	0 Ω
5	3Q4	*	3.4 KΩ	2.3 MEG.	2.8 KΩ	*	3.4 KΩ	*

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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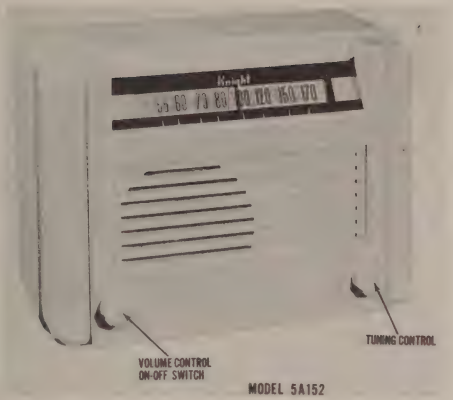
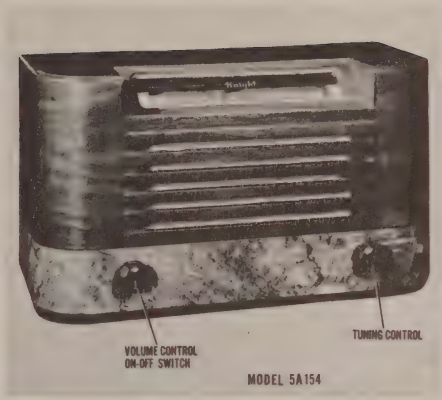
- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MODEL 5A152



MODEL 5A154

KNIGHT
MODELS 5A150, 5A152, 5A154

TRADE NAME	Knight, Models 5A150, 5A152, 5A154.
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago, Ill.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output (Model 5A-152), 50L6GT Power Output (Model 5A-154), 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE--BROADCAST	540-1700KC RATING .255 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	High freq.end (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MMF to reduce hum modulation.
100 MMF	High side to ant. lead. Low side to chassis.	1720KC	"	"	A5	Adjust for maximum output.
100 MMF	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4A	Power Output	50A5	50A5	6AA	Model 5A154
B	Power Output	50L6GT	50L6GT	7AC	Model 5A152
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		DSB-2x40-150	TA-440	PRSA150-40-40	BRD4415	2N511	Filter - Red
B	40	150							" - Green
7	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
9	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
10	.005	600		S-6-005	TC-25	684-002	DT6D5	TP408	" "
11	.02	200		S-4-02	TC-12	484-02	DT4S2	TP423	AVC Filter
12	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	Ant. Coupling
13	.2	200		S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
14	250	500		M0.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
15	250	500		M0.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

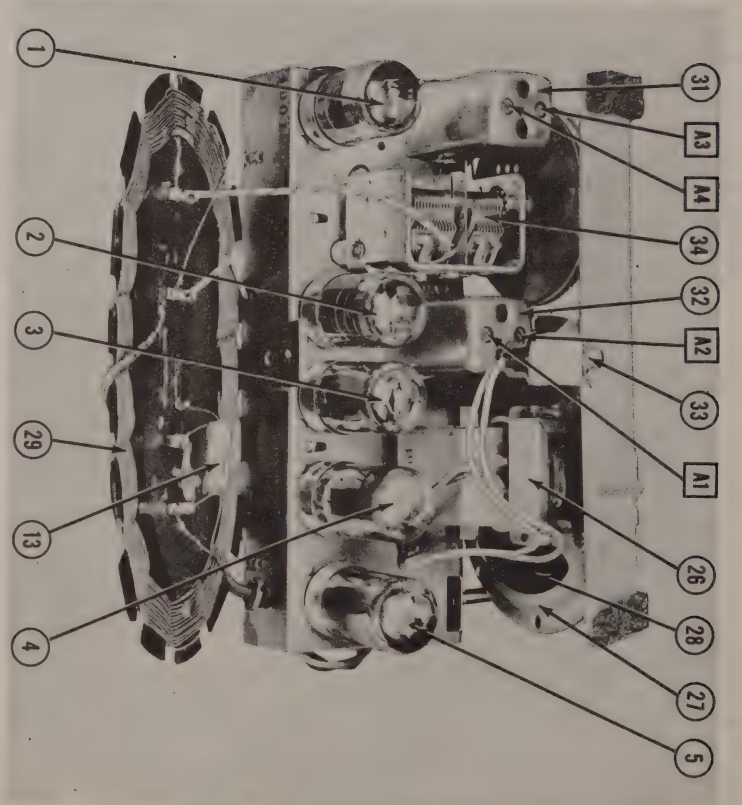
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	¼		BTS-22K	Red-Red-Or. Oscillator Grid
18	10 Meg.	¼		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
19	3.3 Meg.	¼		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	10 Meg.	¼		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	470KΩ	¼		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
22	470KΩ	¼		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	220KΩ	¼		BTS-220A	Red-Red-Yl. Line Isolation
25	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: KNIGHT PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
26	1700Ω	3.3Ω	155Ω	.5Ω	Part of B-11.037	A-3676	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA KNIGHT PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
27	PM	3.3Ω	B-11.037	Mod. P5-X		
	CONE DIA.	VC DIA.				
28	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

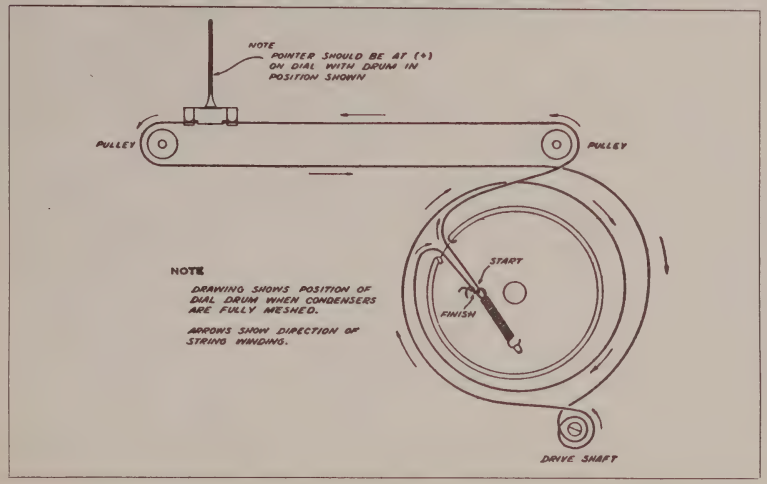
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA KNIGHT PART No.	MEISSNER PART No.	INSTALLATION NOTES
29	Loop Ant.	0Ω	1.3Ω	B5.006		
30	Osc. Coil	.8Ω	6.2Ω	B2.192	14-1040*	*Add 50 MMF cap. to high side of tuning cap.
31	Input IF	21.5Ω	21Ω	C2.191-1	16-6666	
32	Output IF	14.2Ω	14.5Ω	C2.191-2	16-6667	

DIAL LIGHT

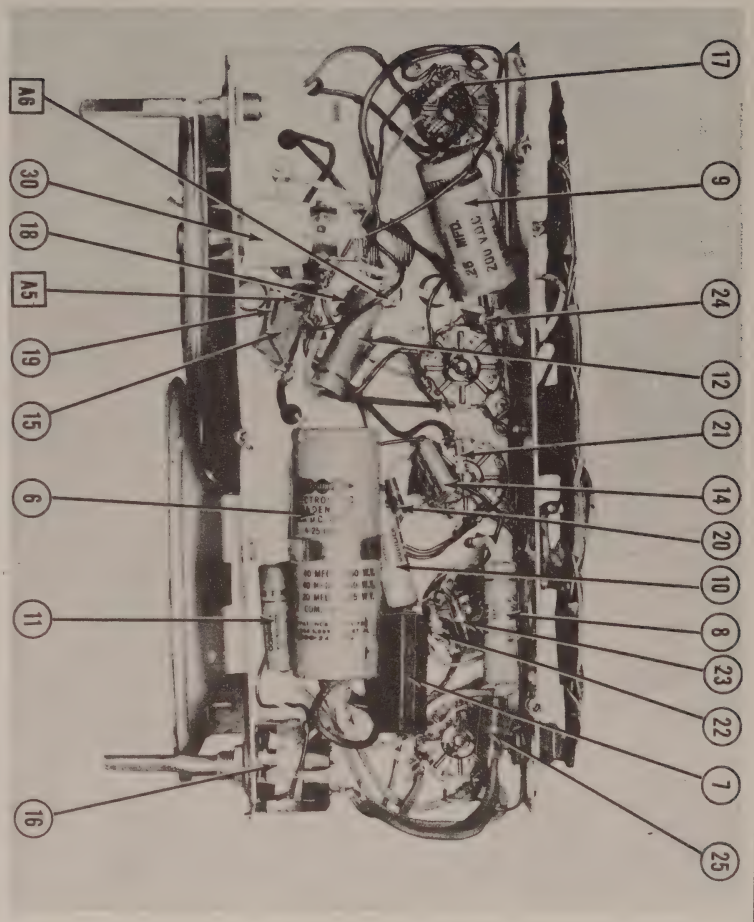
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA KNIGHT PART No.		INSTALLATION NOTES
33A	Bayonet	6-8	0.15	Brown			Type 47 Model 5A154
B	"	6-8	0.2	White			Type 51 Model 5A152

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
34	2 Gang Var.Cap.	C-6.032	(22-410 MMF, 14-182 MMF)

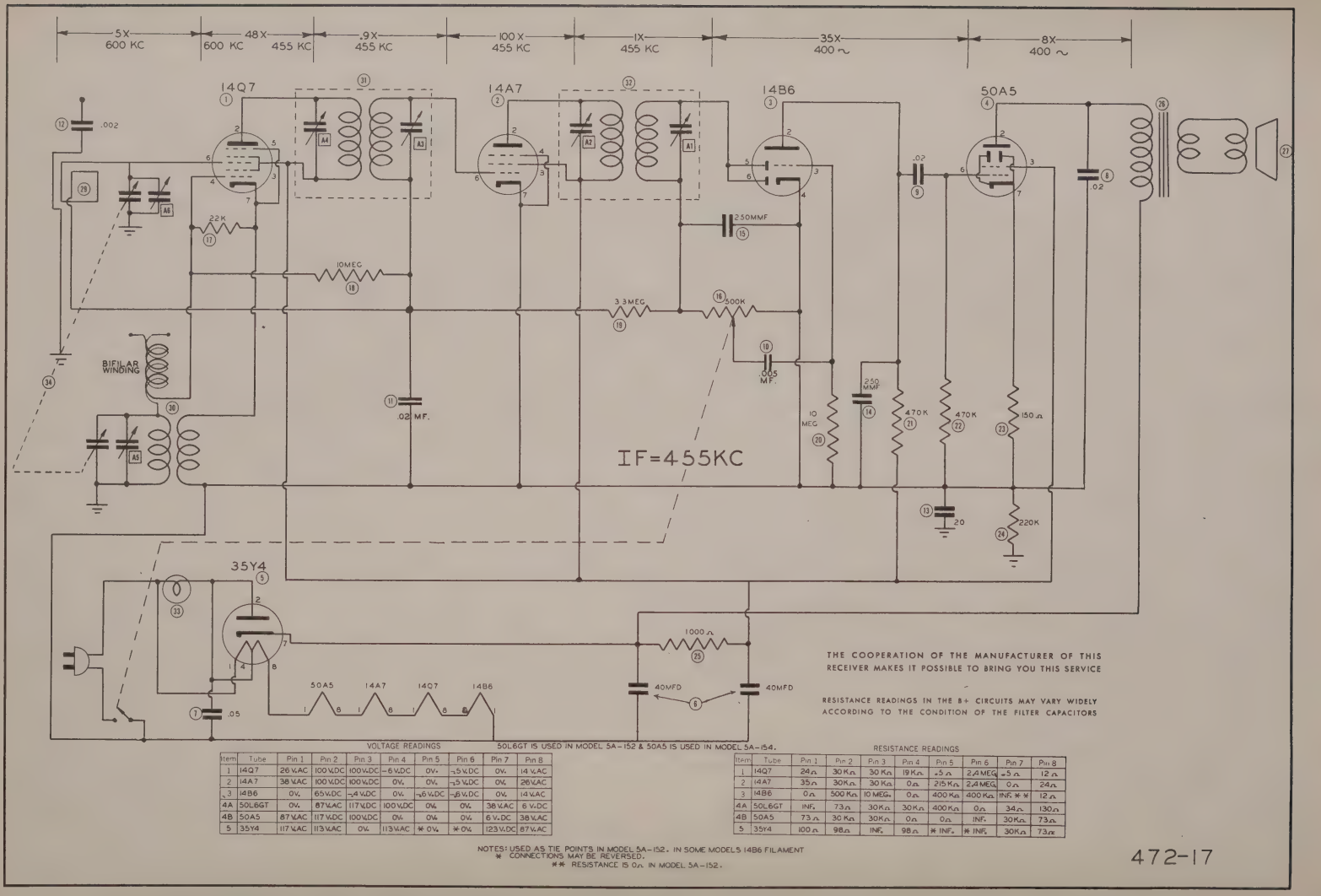


CHASSIS—BOTTOM VIEW



KNIGHT MODELS 5A150, 5A152, 5A154

KNIGHT MODELS 5A150, 5A152, 5A154



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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

VOLTAGE READINGS

50L6GT IS USED IN MODEL 5A-152 & 50A5 IS USED IN MODEL 5A-154.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	26 V.AC	100 V.DC	100 V.DC	-6 V.DC	0V.	-5 V.DC	0V.	14 V.AC
2	14A7	38 V.AC	100 V.DC	100 V.DC	0V.	0V.	-5 V.DC	0V.	26 V.AC
3	14B6	0V.	65 V.DC	-4 V.DC	0V.	-6 V.DC	-6 V.DC	0V.	14 V.AC
4A	50L6GT	0V.	87 V.AC	117 V.DC	100 V.DC	0V.	0V.	38 V.AC	6 V.DC
4B	50A5	87 V.AC	117 V.DC	100 V.DC	0V.	0V.	0V.	6 V.DC	38 V.AC
5	35Y4	117 V.AC	113 V.AC	0V.	113 V.AC	* 0V.	* 0V.	123 V.DC	87 V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24Ω	30 KΩ	30 KΩ	19 KΩ	2.5Ω	2.4 MEG	2.5Ω	12Ω
2	14A7	35Ω	30 KΩ	30 KΩ	0Ω	215 KΩ	2.4 MEG	0Ω	24Ω
3	14B6	0Ω	500 KΩ	10 MEG.	0Ω	400 KΩ	400 KΩ	INF. **	12Ω
4A	50L6GT	INF.	73Ω	30 KΩ	30 KΩ	400 KΩ	0Ω	34Ω	130Ω
4B	50A5	73Ω	30 KΩ	30 KΩ	0Ω	0Ω	INF.	30 KΩ	73Ω
5	35Y4	100Ω	98Ω	INF.	98Ω	* INF.	* INF.	30 KΩ	73Ω

NOTES: USED AS TIE POINTS IN MODEL 5A-152. IN SOME MODELS 14B6 FILAMENT
* CONNECTIONS MAY BE REVERSED.
** RESISTANCE IS 0Ω IN MODEL 5A-152.

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MAGUIRE
MODEL 661, 661-A

MAGUIRE
MODEL 661, 661-A

MAGUIRE MODEL 661

TRADE NAME	Maguire Models 661, 661-A
MANUFACTURER	Maguire Industries Inc., W. Putnam Ave., Greenwich, Conn.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	530-1620KC RATING .235 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end. (Variable fully open).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ant. lead. Low side to B-.	1620KC	"	"	A5	" " " "
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MAGUIRE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGUIRE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		DSb-5030-150	TA-530	PRSA150-40-40	BRD3515	2N520	Filter - Red
B	30	150							" - Green
7	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
8	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	RF Bypass Pwr. Supp.
9	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	" "
12	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
13	.2	400		S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
14	.01	200		S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
15	100	[illegible]		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Audio Plate Bypass
16	100	[illegible]		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
17	.2	500		M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1		MR4o	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "

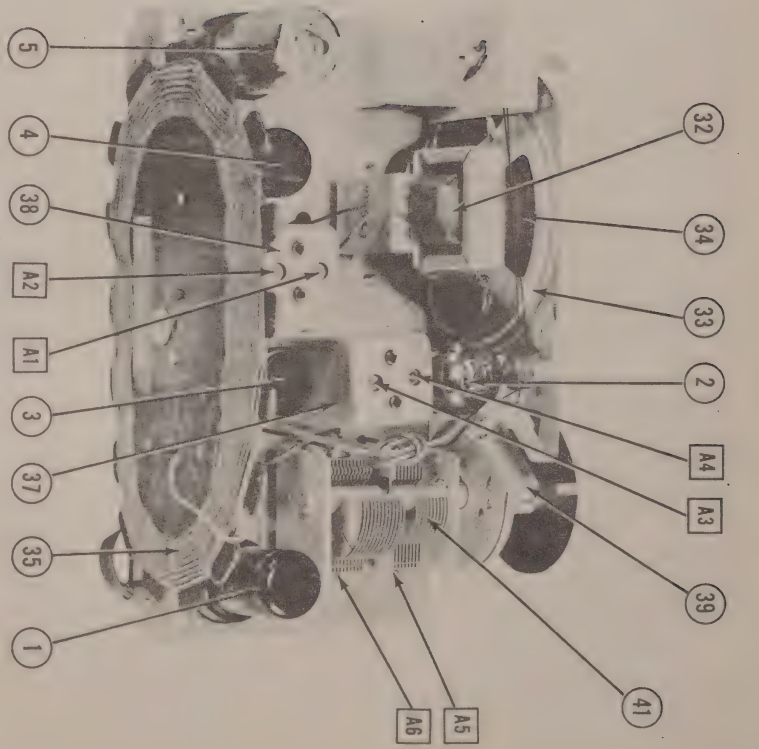
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	IRC PART No.	IDENTIFICATION CODES
19	1500Ω	½		BTS-1500	Br.-Grn.-Red RF Plate Load
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Converter Grid
21	22KΩ	½		BTS-22KΩ	Red-Red-Or. Oscillator Grid
22	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
23	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
26	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
27	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
28	27Ω	2		BW-2-27	Red-Vi.-Blk. Pilot Light Shunt
29	100Ω	2		BW-2-100	Br.-Blk.-Br. Rectifier Ballast
30	100Ω	2		BW-2-100	Br.-Blk.-Br. Line Dropping
31	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAGUIRE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
32	13502	2.52	200Ω	.42Ω	B-20371	A-3676*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MAGUIRE PART No.	JENSEN PART No.		
33	FIELD PM	VC IMP. 2.8Ω	6-20354-1	ST-113† Mod. P4-X		†Fabricate new mounting bracket.
34	CONE DIA. 4"	VC DIA. ½"	NOT READILY	REPLACEABLE-USE COMPLETE UNIT.		

R F COILS

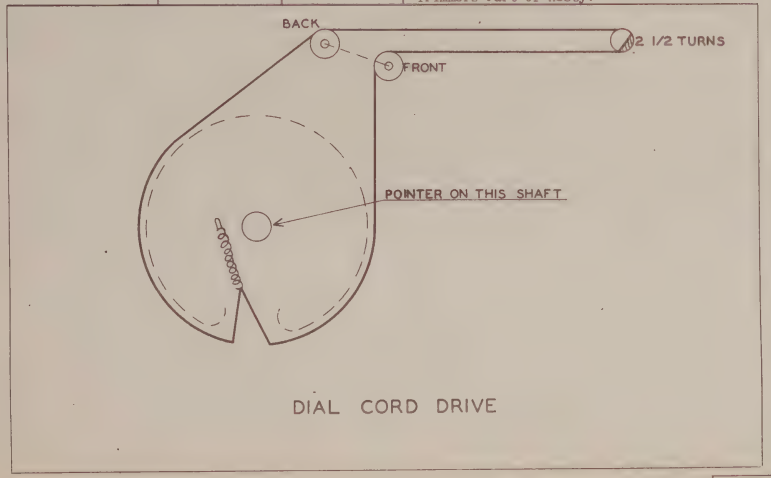
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MAGUIRE PART No.	MEISSNER PART No.	
35	Loop Ant.	0Ω	1Ω	B14123		
36	Osc. Coil		5.5Ω	03963	14-1040	
37	Input IF	23.8Ω	23.8Ω	03964	16-6658	
38	Output IF	21Ω		05143	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MAGUIRE PART No.		
39	Bayonet	6-8	0.15	Brown			Type 47

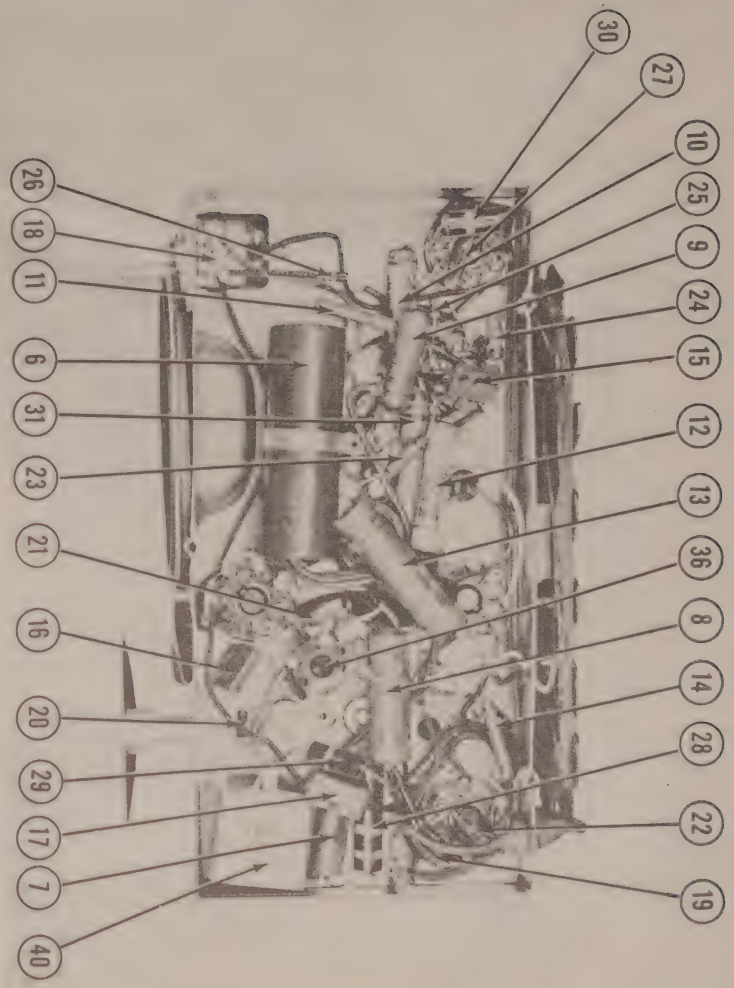
MISCELLANEOUS

ITEM No.	PART NAME	MAGUIRE PART No.	NOTES
40	Selenium Rect.	29375	
41	2 Gang Var. Cap.		(41-465 MMF, 35-202 MMF) Trimmers Part of Assby.

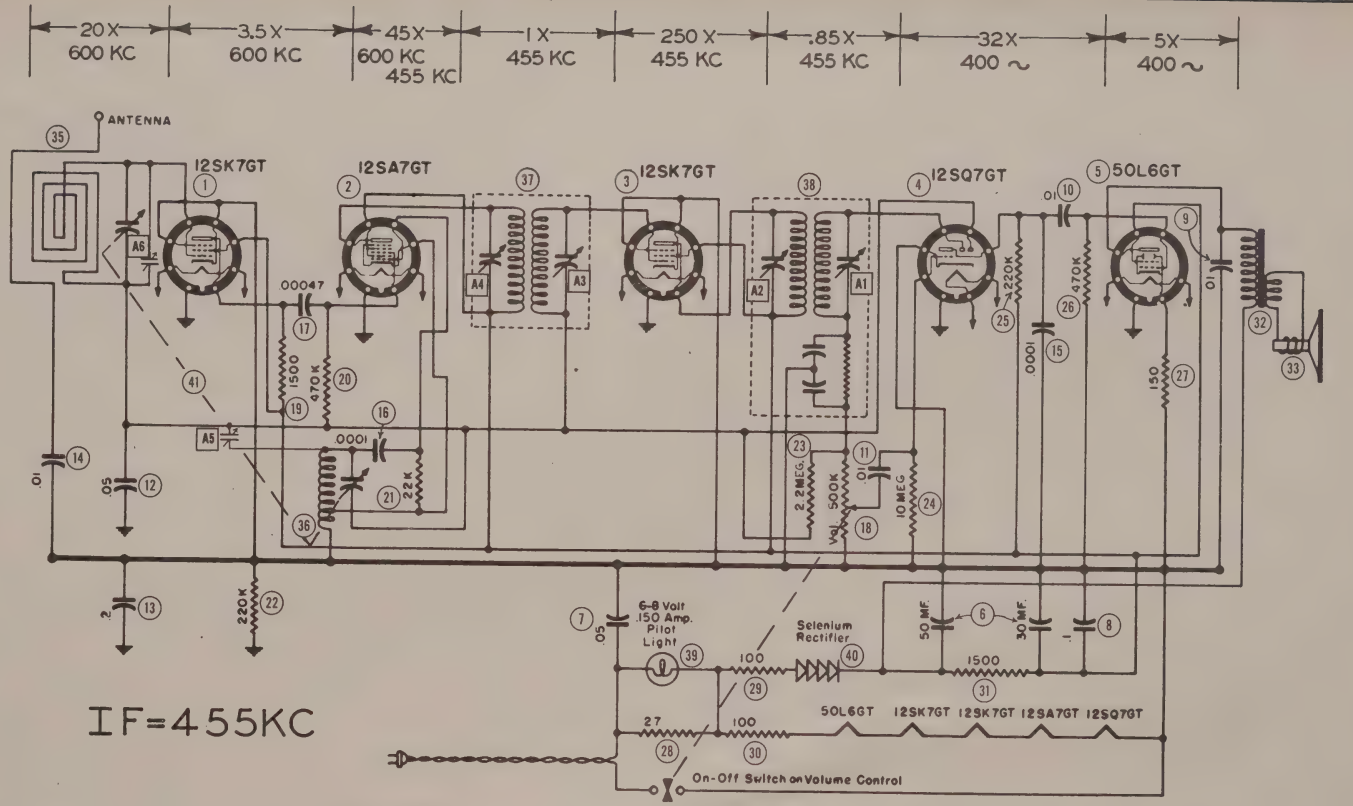


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



MAGUIRE MODELS 661, 661-A



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	46 V.AC	0V.	-4 V.DC	0V.	70 V.DC	34 V.AC	60 V.DC
2	12SA7GT	0V.	23 V.AC	70 V.DC	70 V.DC	-3.7 V.DC	0V.	11 V.AC	-4 V.DC
3	12SK7GT	0V.	34 V.AC	0V.	-4 V.DC	0V.	70 V.DC	23 V.AC	70 V.DC
4	12SQ7GT	0V.	-6 V.DC	0V.	-2 V.DC	-4 V.DC	49 V.DC	11 V.AC	0V.
5	50L6GT	0V.	97 V.AC	116 V.DC	70 V.DC	0V.	113 V.AC	46 V.AC	4.5 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	190KΩ	46Ω	0Ω	2.6MEG.	0Ω	150KΩ	35Ω	150KΩ
2	12SA7GT	190KΩ	23Ω	150KΩ	150KΩ	20KΩ	.5Ω	12Ω	3 MEG.
3	12SK7GT	190KΩ	35Ω	0Ω	2.6MEG.	0Ω	150KΩ	23Ω	150KΩ
4	12SQ7GT	190KΩ	10MEG.	0Ω	410KΩ	2.6MEG.	370KΩ	12Ω	0Ω
5	50L6GT	190KΩ	90Ω	150KΩ	150KΩ	390KΩ	190Ω	46Ω	150Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MECK (PLYMOUTH)
MODELS PM-5C5-PW-10

MECK (PLYMOUTH)
MODELS PM-5C5-PW-10

MECK (PLYMOUTH) MODEL PM-5C5-PW-10

TRADE NAME	Meck (Plymouth) Model PM-5C5-PW-10
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC Operated Combination Radio-Phonograph - Superheterodyne Receiver
TUBES (FIVE)	Types, 14Q7 or 12SA7 Converter, 14A7 or 12SK7 IF Amp., 14B6 or 12SQ7 Det.-AVC-AF, 50B5 or 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.
POWER SUPPLY	110-125 Volts AC
TUNING RANGE—BROADCAST	550-1600KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn tuning control fully clockwise and set pointer to last reference mark at low frequency end. Use isolation transformer if available. If not, connect a capacitor in series with low side to chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin 8 (grid) of 12SA7. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1600KC	1600KC	"	A5	Fashion loop from few turns of wire and radiate signal into set. Adjust for maximum output
	"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	Lock-In Type
		12SA7	12SA7	8R	Octal Type
2	IF Amp.	14A7	14A7	8V	
		12SK7	12BK7	8N	
3	Det.-AVC-AF	14B6	14B6	8W	
		12SQ7	12SQ7	8Q	
4	Power Output	50A5	50A5	6AA	
		50L6GT	50L6GT	7AC	
5	Rectifier	35Y4	35Y4	5AL	
		35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	20	150		DSB-3x20-150	TA-220	PRSA150-20-	CZ2215	CN509	Filter - Green
B	20	150				20			"
C	20	150			UT-201	PRS150-20	BR2015	TC45	"
7	.05	400	CP14503	S-4-05	TC-15	484-05	DT4S5	TP426	Output Plate Bypass
8	.03	400		S-6-03	TC-13	484-03	DT4S3	TP424	Audio Coupling
9	.01	400	CP14103	S-4-01	TC-11	484-01	DT4S1	TP421	" "
10	.025	400		S-4-02	TC-12	484-02	DT4S2	TP451	Tone Compensation
11	.01	400	CP14103	S-4-01	TC-11	484-01	DT4S1	TP421	Osc. Coupling
12	.05	400	CP14503	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
13	.05	400	CP14503	S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
14	250	500	CM15251	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
15	250	500	CM15251	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.
16	300	500	CM15301	MO.5-33	MS-33	1468-0003	5W5T3	MC241	Osc. Anode Coupling
17	25	500	CM15250	MOS.5-425	MS425	1468-000025	5R5Q25	MCB220	Fixed Trimmer

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1	VC-10105	MK402	D13-137	AM-63-Z	Volume Control-See Note 1
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
18A	500KΩ	1		MK401	D13-133	AM-60-Z	Volume Control-See Note 2
B	Shaft			Not Req.	E	KSS-3	Attach to 18A per instructions
C	Switch			M23	41	SW-A	" " " " "

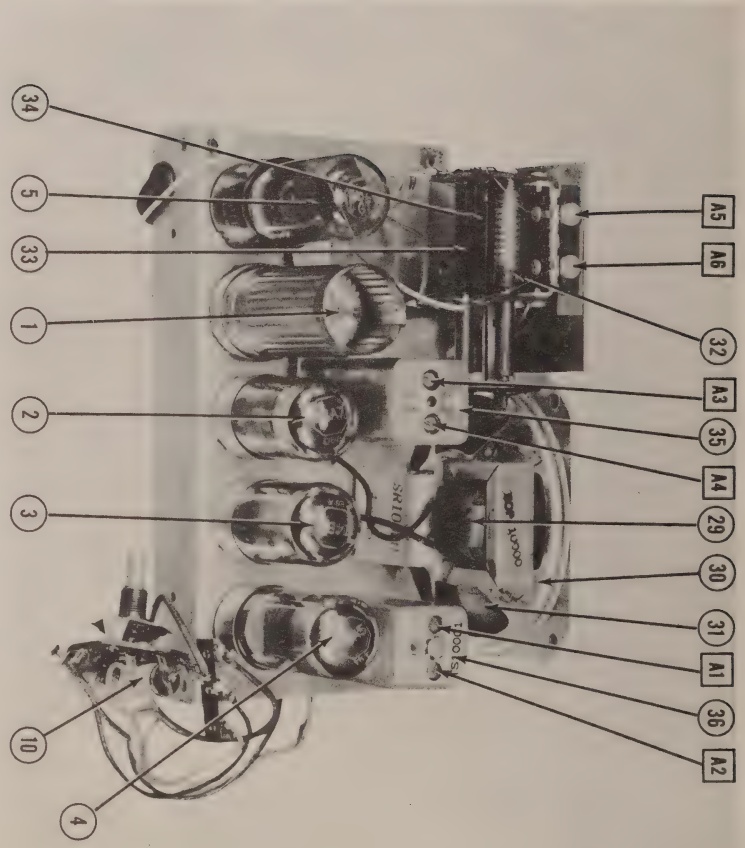
Note 1 - Used in early production
Note 2 - Used in later production

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
19	20KΩ	½	RC-32002	BTS-22K	Red-Blk.-Or. Oscillator Grid
20	3900Ω	½	RC-34001	BTS-3900	Or.-White-Red Screen Dropping
21	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.	½	RC-31005	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	240KΩ	½		BTS-220K	Red-Yl.-Yl. AF Plate Load
24	500KΩ	½	RC-35003	BTS-470K	Grn.-Blk.-Yl. Output Grid
25	150Ω	½	RC-31500	BW-½-150	Br.-Grn.-Br. Output Cathode
26	1000Ω	½	RC-31001	BTS-1000	Br.-Blk.-Red Filter
27	200Ω	½	RC-32000	BW-½-200	Red-Blk.-Br. "
28	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st IF Transformer Shunt-See Note 3

Note 3 - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

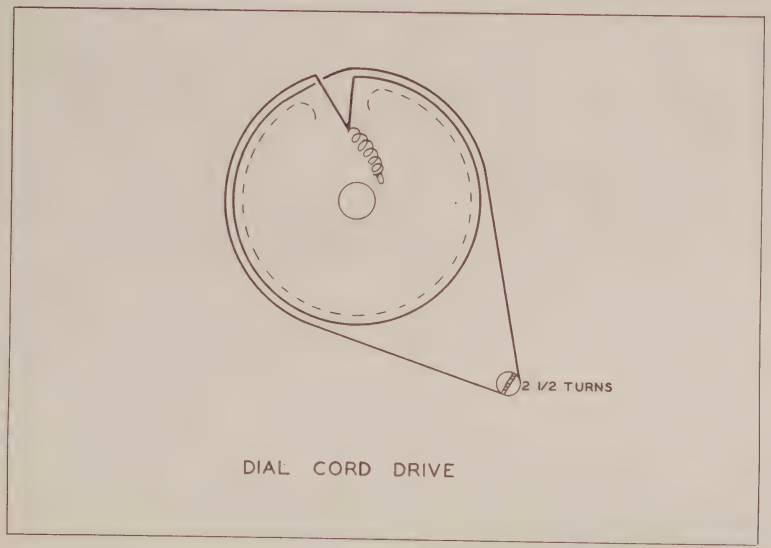
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MECK PART No.	STANCOR PART No.	THORDARSON PART No.		
	PRI.	SEC.	PRI.	SEC.					
29	2100Ω	3.25Ω	188Ω	.9Ω	TO-10000	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

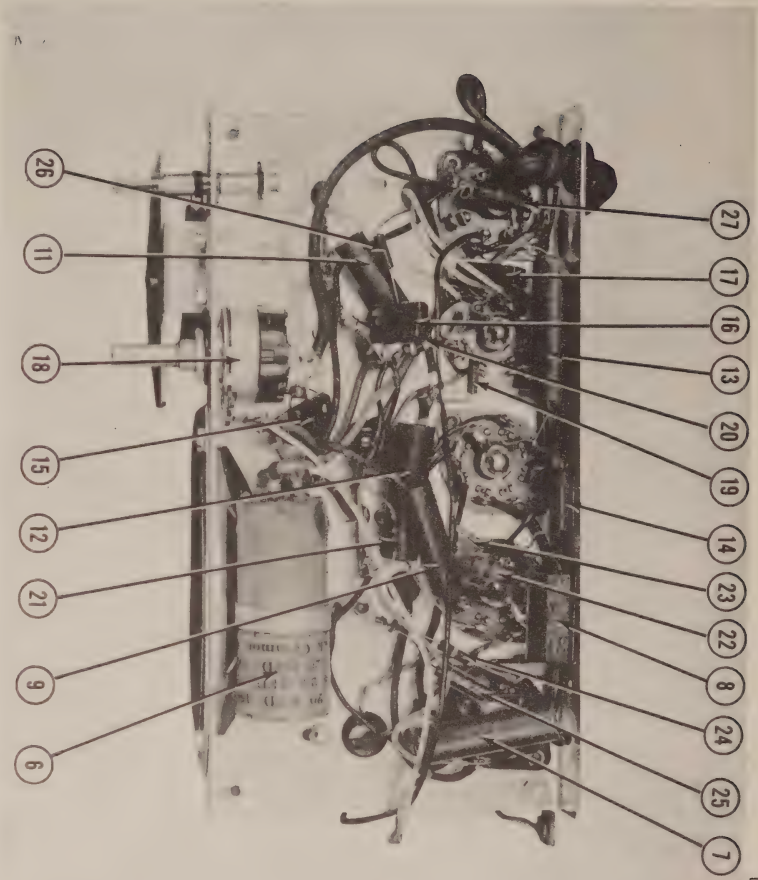
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.		
30	FIELD	VC IMP.	SR-10000	ST-113 Mod. P4-X		
	PM	3.25Ω				
31	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
	3-15/16"	1/2"				

R F COILS

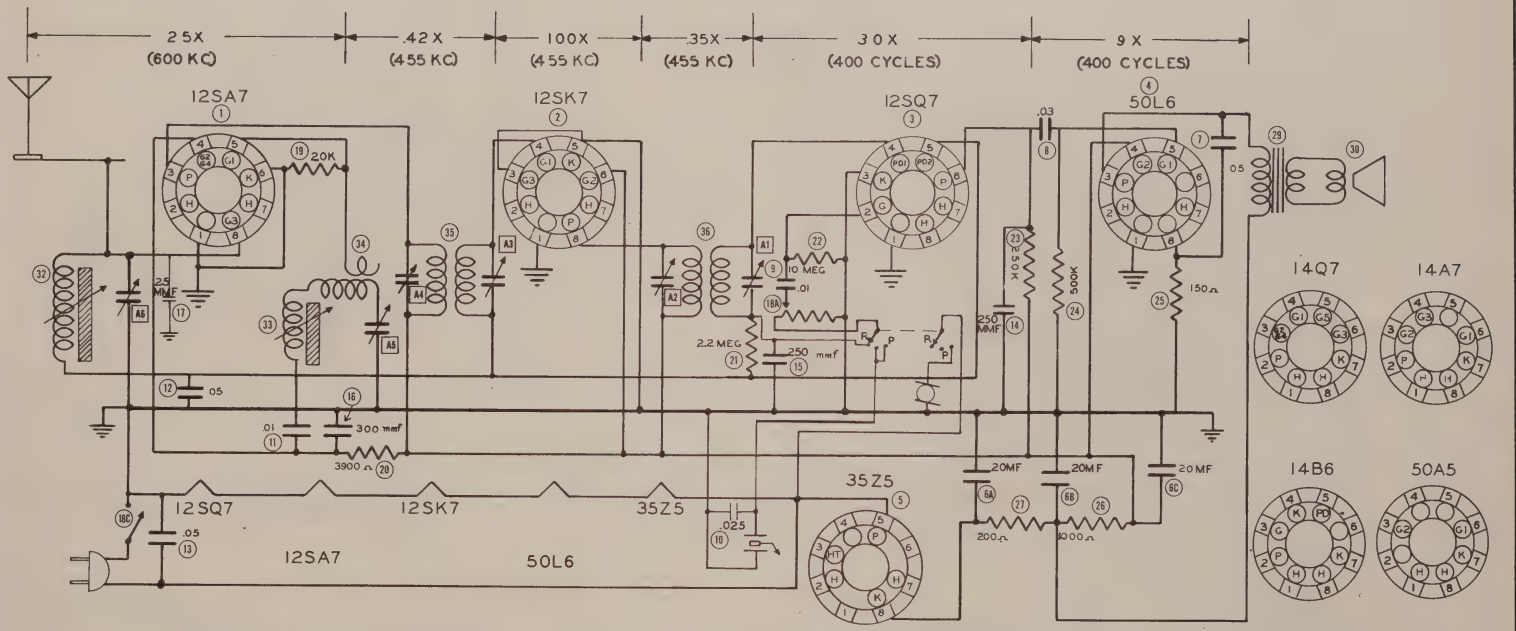
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
31	Ant. Coil	4.5Ω				Part of Tuner Assembly Part #VP10000
32	Osc. Coil	6Ω				" " " " " "
33	Osc. Coup.	8.5Ω				" " " " " "
34	Input IF	20Ω	20Ω	TS10000	16-6658	
35	Output IF	19Ω	19Ω	TS10001	16-6660	



CHASSIS—BOTTOM VIEW



MECK MODEL PM-505-PW-10



IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12 V.AC	102 V.DC	77 V.DC	−7.2 V.DC	0V.	−1.2 V.DC	0V.	24 V.AC
2	14A7	35 V.AC	102 V.DC	109 V.DC	0V.	0V.	−.6 V.DC	0V.	24 V.AC
3	14B6	12 V.AC	72 V.DC	−.4 V.DC	0V.	−.1 V.DC	−2.6 V.DC	0V.	0V.
4	50A5	35 V.AC	120 V.DC	112 V.DC	0V.	0V.	0V.	6.3 V.DC	82 V.AC
5	35Z5GT	0V.	117 V.AC	110 V.AC	125 V.DC	117 V.AC	0V.	82 V.AC	135 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12Ω	3 MEG.	3 MEG.	18 KΩ	0Ω	2.6 MEG.	0Ω	25Ω
2	14A7	36Ω	3 MEG.	3 MEG.	0Ω	0Ω	2.6 MEG.	0Ω	25Ω
3	14B6	12Ω	3.3 MEG.	10 MEG.	0Ω	450KΩ	2.6 MEG.	0Ω	0Ω
4	50A5	36Ω	3 MEG.	3 MEG.	INF.	INF.	480KΩ	140Ω	80Ω
5	35Z5GT	INF.	110Ω	103Ω	3 MEG.	110Ω	INF.	80Ω	3 MEG.

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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

MINERVA
MODEL W-702B, L-702

MINERVA
MODEL W-702B, L-702

MINERVA MODEL W-702B

TRADE NAME	Minerva, Models W-702B, L-702
MANUFACTURER	Minerva Corp. of america, 238 William St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 or 14A7 RF Amp., 12SA7 or 14Q7 Converter, 12SK7 or 14A7 IF Amp., 12SQ7 or 14B6 Det.-AVC-AF, 35L6 or 35A5 Power Output, 35Z5 or 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1640 KC RATING .245 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and adjust pointer to last reference mark to left of dial back plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1400KC	Last reference mark to right on dial backplate.	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	12SK7GT	12SK7GT	8N	
B		14A7	14A7	8V	
2A	Converter	12SA7GT	12SA7GT	8AD	
B		14Q7	14Q7	8AL	
3A	IF Amp.	12SK7	12SK7	8N	
B		14A7	14A7	8V	
4A	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
B		14B6	14B6	8W	
5A	Power Output	35L6GT	35L6GT	7AC	
B		35A5	35A5	6AA	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B		35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MINERVA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		DSB-2x40-150	TA-440	PRSA150-40-40	BRD4415	2N511	Filter - Red
B	40	150							" - Green
8	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
9	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
10	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	" "
12	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
13	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
14	300	500		MO.5-33	1FM-33	1468-0003	SW5T3	MC241	Audio Plate Bypass
15	300	500		MO.5-33	1FM-33	1468-0003	SW5T3	MC241	IF Bypass Vol. Cont.
16	300	500		MO.5-33	1FM-33	1468-0003	SW5T3	MC241	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MINERVA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instruction
C	Switch			M26	41	SW-A	" " " " "

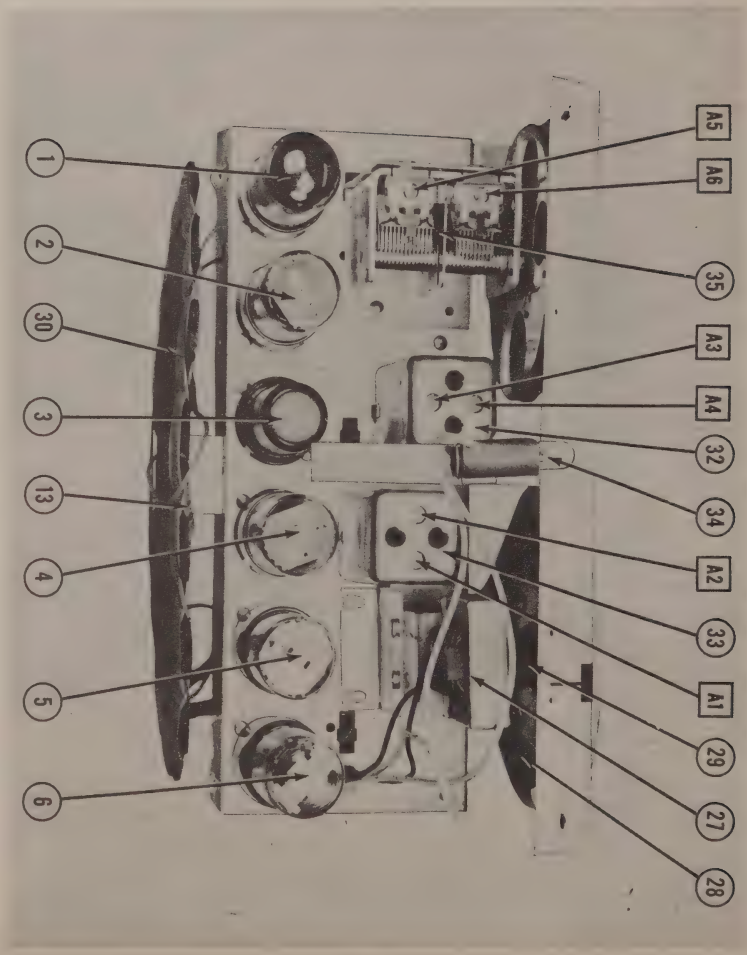
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MINERVA PART No.	IRC PART No.	IDENTIFICATION CODES
18	1000Ω	½		BTS-1000	Br.-Blk.-Red RF Plate Load
19	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Grid Load
20	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
21	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
23	330KΩ	½		BTS-330K	Or.-Or.-Yl. 1st AF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
25	220Ω	½		BW-½-220	Red-Red-Br. Output Cathode
26	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MINERVA PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
27	2300Ω	3.5Ω	160Ω	.5Ω		A-3878*	T22845*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MINERVA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105†		†Fabricate new mounting bracket.
28	PM	3.5Ω	15-9	Mod. P5-X		
	CONE DIA.	VC DIA.				
29	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

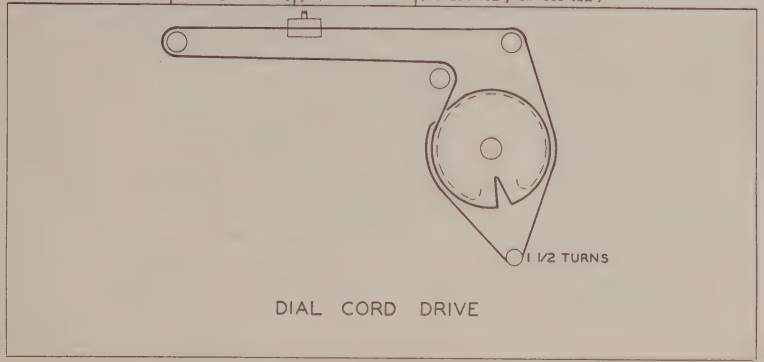
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MINERVA PART No.	MEISSNER PART No.	INSTALLATION NOTES
30	Loop	.5Ω	1.5Ω	5-20		
31	Osc. Coil		4Ω	5-19	14-1040†	†Add 50 MMFD Cap from grid to high side tuning cap.
32	Input IF	31Ω	31Ω	20-14	16-6658	
33	Output IF	30Ω	30.5Ω	20-15	16-6660	

DIAL LIGHT

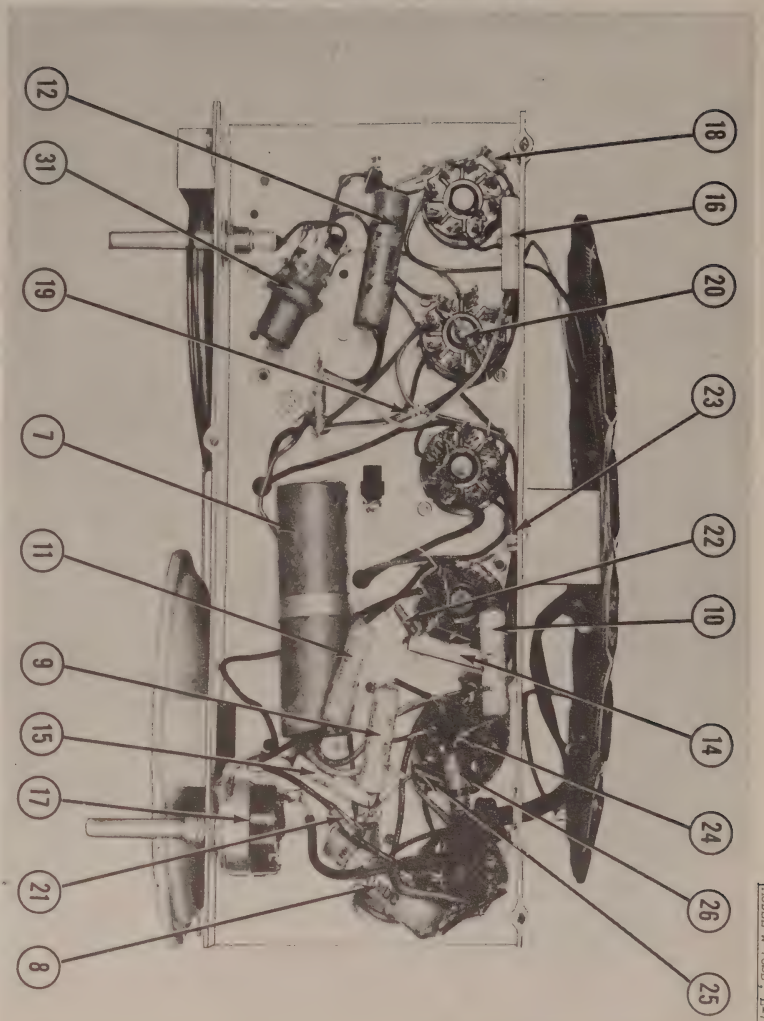
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MINERVA PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	MINERVA PART No.	NOTES
35	2 Gang Var. Cap.	25-14	(30-195 MMF, 32-408 MMF)

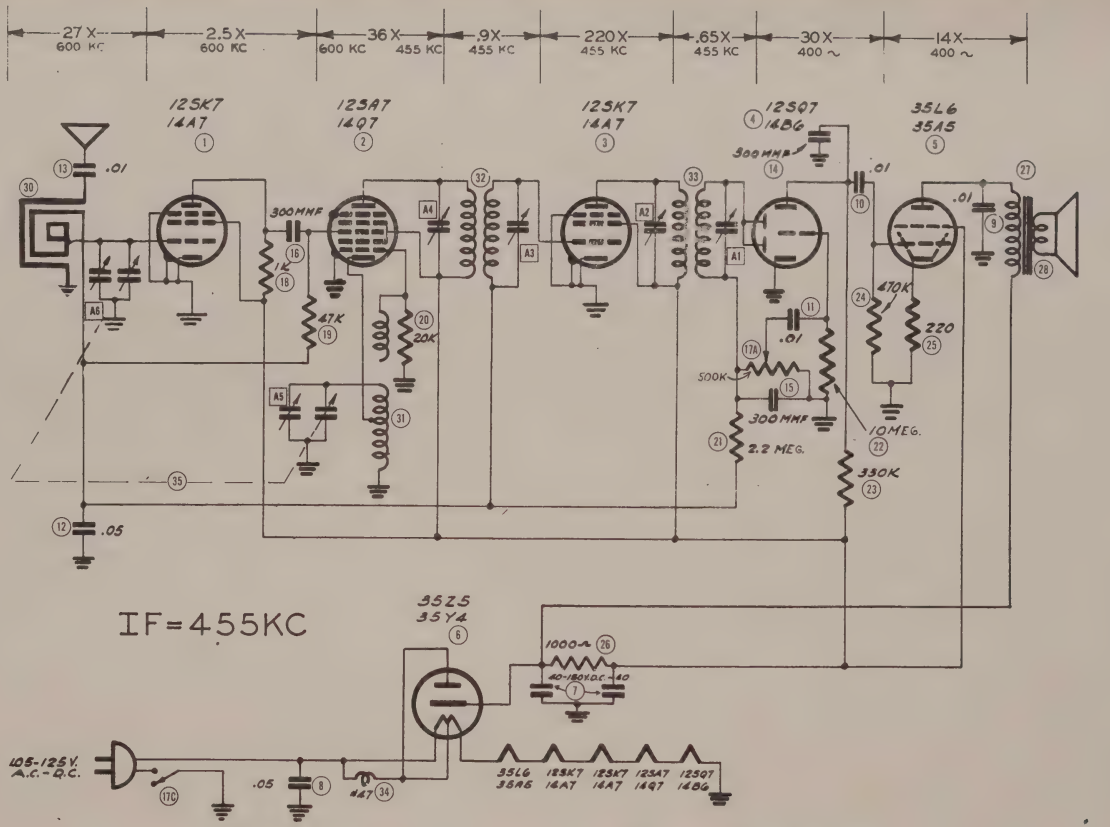


CHASSIS—BOTTOM VIEW



MINERVA
MODEL W-702B, L-702

MINERVA
MODEL W-702B, L-702



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	26 V.AC	0V.	-7 V.DC	0V.	86 V.DC	39 V.AC	77 V.DC
2	12SA7GT	0V.	14 V.AC	86 V.DC	86 V.DC	-6 V.DC	0V.	26 V.AC	-7 V.DC
3	12SK7	0V.	39 V.AC	0V.	-7 V.DC	0V.	86 V.DC	53 V.AC	86 V.DC
4	12SQ7GT	0V.	-8 V.DC	0V.	-6 V.DC	-6 V.DC	60 V.DC	14 V.AC	0V.
5	35L6GT	0V.	53 V.AC	117 V.DC	86 V.DC	0V.	0V.	88 V.AC	61 V.DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	0V.	113 V.AC	-7 V.DC	88 V.AC	121 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	24Ω	0Ω	2.3 MEG.	0Ω	200 KΩ	34Ω	200 KΩ
2	12SA7GT	0Ω	12Ω	200 KΩ	200 KΩ	18 KΩ	.3Ω	24Ω	2.3 MEG.
3	12SK7	0Ω	34Ω	0Ω	2.3 MEG.	0Ω	200 KΩ	44Ω	200 KΩ
4	12SQ7GT	0Ω	9 MEG.	0Ω	390 KΩ	390 KΩ	530 KΩ	12Ω	0Ω
5	35L6GT	0Ω	44Ω	200 KΩ	200 KΩ	420 KΩ	INF.	75Ω	230Ω
6	35Z5GT	INF.	98Ω	96Ω	INF.	96Ω	2.3 MEG.	75Ω	200 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

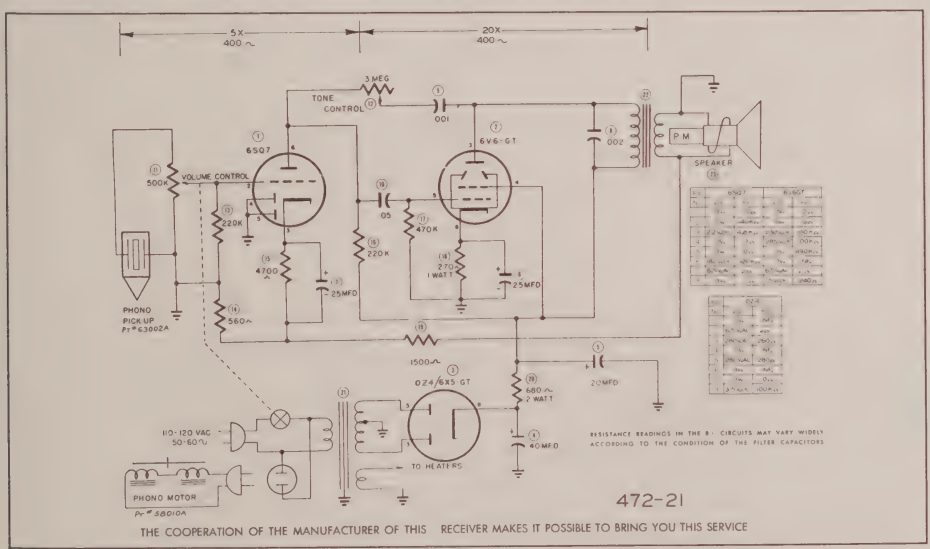
472-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PACKARD-BELL MODEL C-1362

TRADE NAME	Packark-Bell, Model C-1362
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	AC Operated Phonograph with 3-Tube Amplifier & Speaker
TUBES (THREE)	Types, 6SQ7GT Voltage Amp., 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	110 - 120 Volts AC RATING .300 Amp. @ 117 Volts AC



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Voltage Amp.	6SQ7	6SQ7	8Q	
2	Power Amp.	6V6GT	6V6GT	7AC	
3	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4	40	350	24017	M-40-350	EL-5	PRS450-40	BR4045	TC78	Filter
5	20	350	24003	M-20-350	UT-203	PRS450-20	5R2045	TC65	"
6	25	25	24006	M-25-25	TA-25	PRS25-25	BR252A	TC26	
7	25	25	24006	M-25-25	TA-25	PRS25-25	BR252A	TC26	Cath. Bypass
8	.002	600	23002	S-6-002	TC-22	684-002	DT6D2	TP405	Output Plate Bypass
9	.001	600	23001	S-6-001	TC-21	684-001	DT6D1	TP404	Tone Compensation
10	.05	600	23010	S-6-05	TC-15	684-05	DT6S5	TP415	Audio Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
11A	500KΩ	1	25007	MR43	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	FS-3	Attach to 11A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
12A	3 Meg.	1	25503	MR57	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	FS-3	Attach to 12A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	IRC PART No.	IDENTIFICATION CODES
13	220KΩ	½	73049	BTS-220K	Red-Red-Yl. AF Grid
14	560Ω	½	73022	BTS-560	Grn.-Blue-Br. AF Cathode
15	4700Ω	½	73033	BTS-4700	Yl.-Vi.-Red AF Cathode
16	220KΩ	½	73049	BTS-220K	Red-Red-Yl. AF Plate Load
17	470KΩ	½	75051	BTS-470K	Yl.-Vi.-Yl. Output Grid
18	270Ω	1	73074	BW-1-270	Red-Vi.-Br. Output Cathode
19	1500Ω	½	73201	BTS-1500	Br.-Grn.-Red Feedback
20	680Ω	2	73121	BT-2-680	Blue-Gray-Br. Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	
21	117VAC @ .3A	650V CT @ .05IA	5.5V AC @ 1.2A		89008	P-6119	T22R01	

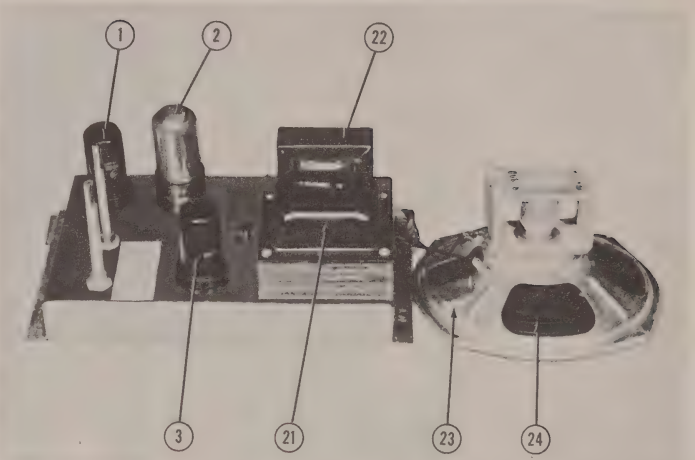
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
22	5500Ω	3.5Ω	800Ω	.9Ω	89405	A-3877*	T22S58		*Drill one new mounting hole.

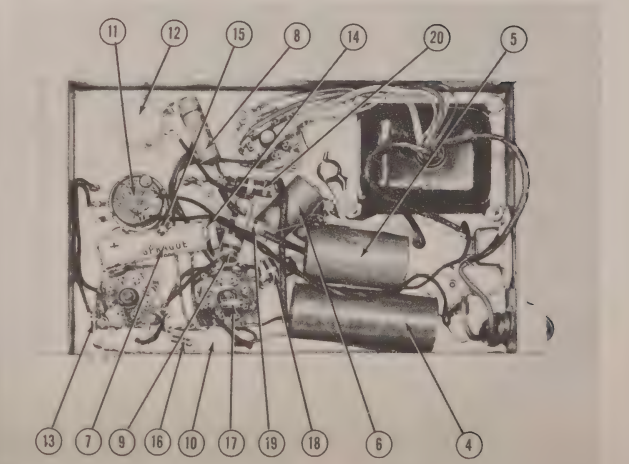
SPEAKER

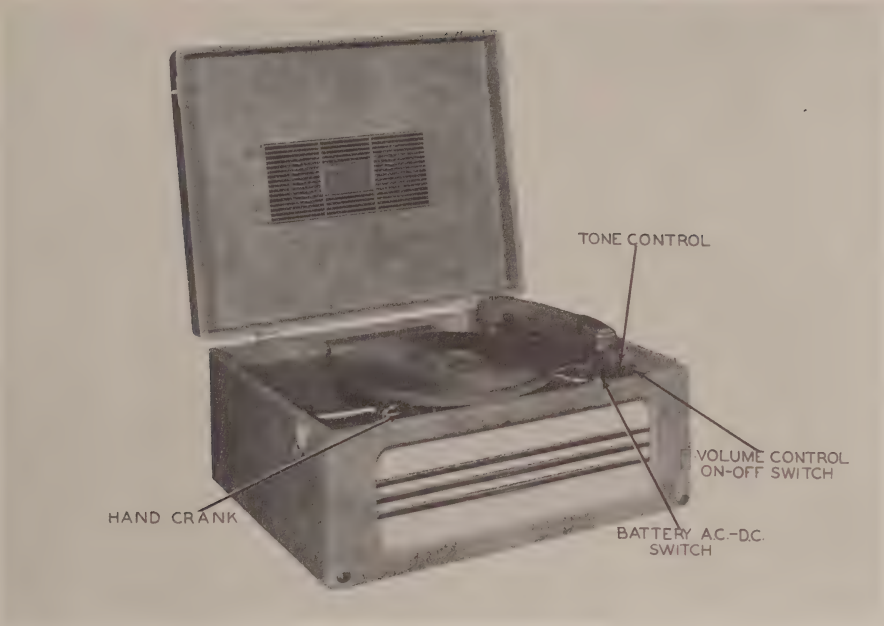
ITEM No.	RATINGS		REPLACEMENT DATA: PACKARD-BELL PART No.	JENSEN PART No.		INSTALLATION NOTES
23	FIELD	VC IMP.	B3003	ST-111 Mod. P6-U		
	PM	3.5Ω				
24	CONE DIA. 6"	VC DIA. ½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





PACKARD-BELL MODEL C-1461

TRADE NAME	Packard-Bell, Model C-1461
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	Three Power Portable Phonograph with 4-Tube Amplifier & Speaker
TUBES (FOUR)	Types, 1S5 Voltage Amp., 3Q4 Power Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 1.5 Volts "A" Battery and 90 Volt "B" Battery
RATING	.235 Amp. @ 117 Volts AC or 160 MA @ 1.5 Volts DC and 10 MA @ 90 Volts DC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	0V.	0V.	0V.	28V.DC	28V.DC	0V.	1.1V.DC
2	3Q4	0V.	111V.DC	0V.	103V.DC	₸1.5V.DC	111V.DC	0V.
3	50B5	0V.	6.5V.DC	33V.AC	84 V.AC	95V.DC	103V.DC	0V.
4	35W4	0V.	0V.	84V.AC	117 V.AC	117 V.AC	112V.AC	138V.DC

₸ MEASURED ON BATTERY POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	*	INF.	INF.	3 MEG.	3 MEG.	500 KΩ	*
2	3Q4	*	1 MEG.	650 KΩ	1 MEG.	*	1 MEG.	*
3	50B5	650 KΩ	*	172Ω	225Ω	1 MEG.	1 MEG.	650 KΩ
4	35W4	INF.	INF.	225Ω	252Ω	252Ω	248Ω	1 MEG.

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Voltage Amp.	1S5	1S5	7AV	
2	Power Output	3Q4	3Q4	7BA	Battery Operated
3	Power Output	50B5	50B5	7BZ	AC Operated
4	Rectifier	35W4	35W4	5BQ	" "

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150	24007A	DY-304	EL-351	AF88D	UP6CJ62	FP304	■ Filter
B	20	150							▲ "
C	100	25				PRS25-100			Cath. Bypass
6	.1	400	23011	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Filter
7	.002	600	23002	S-6-002	TC-22	684-002	DT6D2	TP405	Output Plate Bypass
8	.005	600	23004	S-6-005	TC-25	684-005	DT6D5	TP408	Tone Compensation
9	.05	400	23009	S-4-05	TC-1b	484-05	DT4S5	TP426	Audio Coupling
10	.1	200	23011	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Isolation
11	.1	400	23011	S-4-1	TC-1	484-.1	DT4P1	TP428	Phono Coupling
12	470	500	23229	M0.5-35	1FM-35	1468-0005	5W5T5	MC245	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACK.-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	500KΩ	1	25004-A	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 13A per instructions
C	Switch		"	M28	41	SW-A	" " " "
14A	3 Meg.	1	25005-A	MR57	D13-140	M-67-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-B. PART No.	IRC PART No.	IDENTIFICATION CODES
15	10 Meg.	½	73059	BTS-10 Meg.	Br.-Blk.-Blue Audio Voltage Divider
16	330KΩ	½	73050	BTS-330K	Or.-Or.-Yl. AF Plate Load
17	680KΩ	½	73052	BTS-680K	Blue-Gray-Yl. Output Grid
18	120Ω	½	73014	BW-½-120	Br.-Red-Br. Output Cathode
19	200Ω	10	73901	AB-200	Filament Dropping
20	680Ω	2	73121	BT-2-680	Blue-Gray-Br. Filter
21	390Ω	½	73020	BW-½-390	Or.-White-Br. Bias

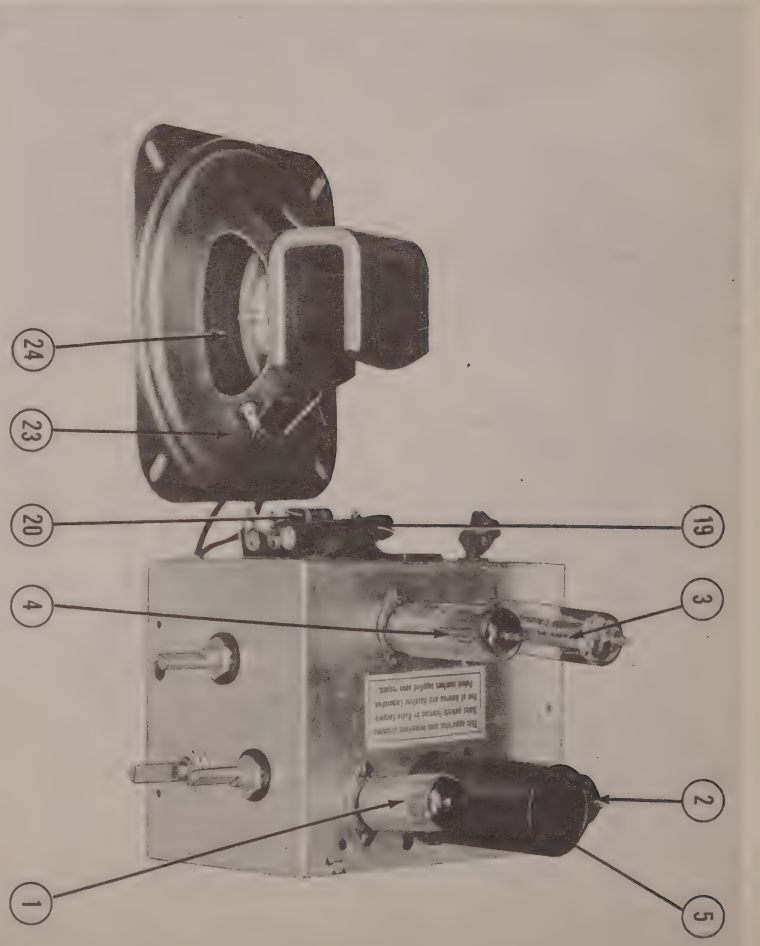
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PACK.-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
22	10KΩ tapped @ 2KΩ	3.4Ω	820Ω tapped @ 220Ω	.85Ω	89004				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PACKARD-BELL PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-108		
23	PM	3.4Ω	83201	Mod. P8-X		
	CONE DIA.	VC DIA.				
24	5"	⅛"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

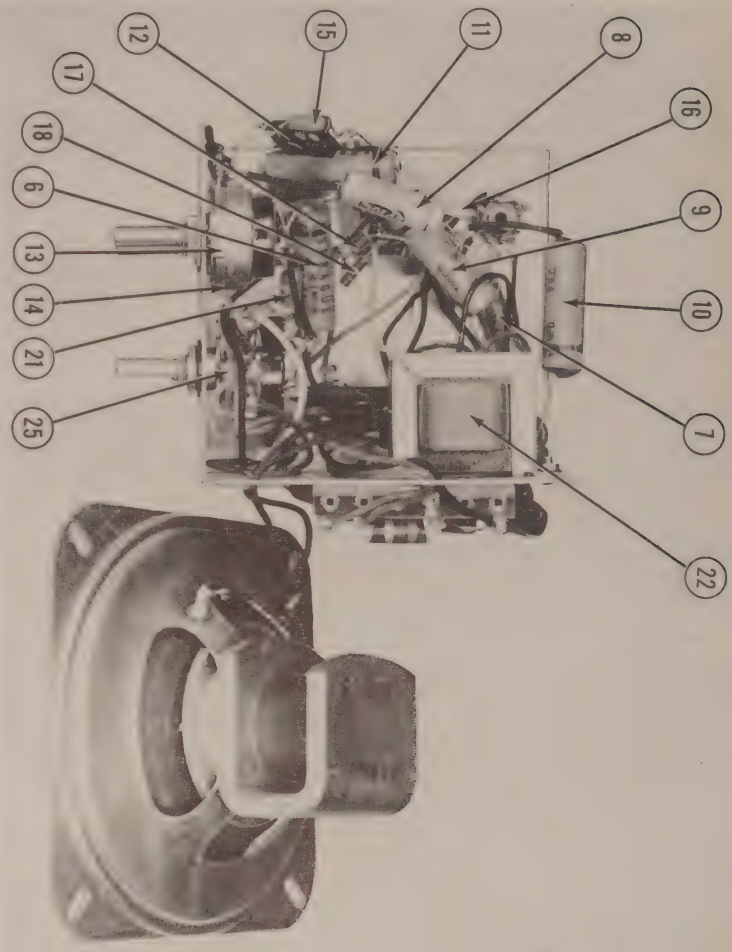
MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
25	AC-DC-Batt. Sw.	86003B	3PDT & SPDT (Wafer Type)
	Motor, Electric	58010A	
	Motor, Spring	58014C	
	Needle, Phono.	59003	Permanent Type
	Pickup, Phono.	63006	Arm & Cartridge
	"A" Battery	16001	1½ Volts
	"B" Battery	16002	45 Volts (2 Used)

PUSHBUTTON ADJUSTMENTS

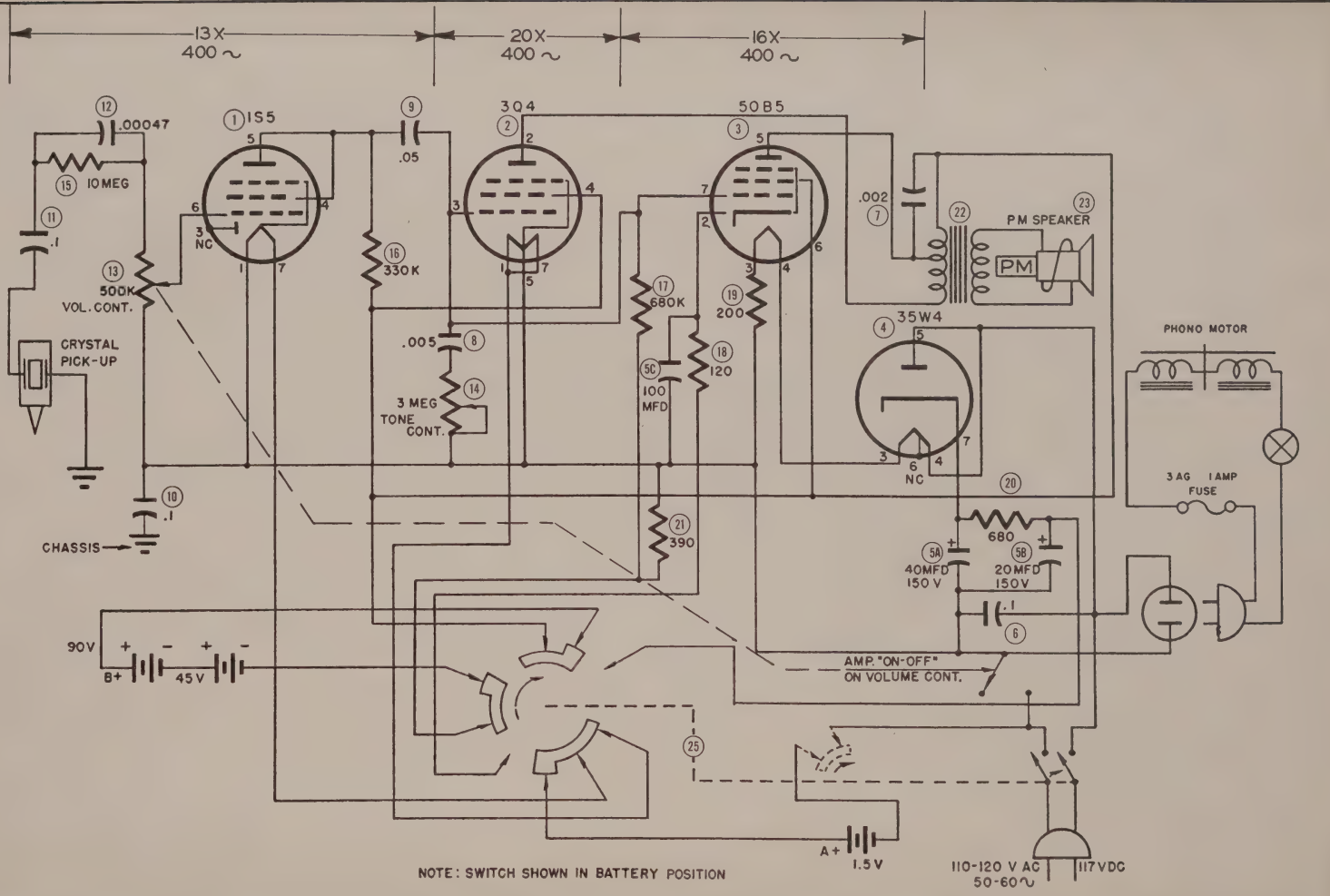
1. Remove the two Phillips head screws holding left hand motorboard panel. Remove panel.
2. Remove the push-on type volume control knob and the tone control knob.
3. Remove the set screw type AC-DC-Battery control knob.
4. Remove the turntable.
5. Remove the seven Phillips head screws holding motorboard to cabinet. Lift motorboard out of cabinet.
6. Disconnect the phono-motor plug from chassis.
7. Disconnect the three lead battery plug from the batteries.
8. Remove three wood screws holding chassis to cabinet.
9. Remove four wood screws and washers holding speaker to cabinet. Remove speaker.
10. Remove bracket holding line cord.
11. Remove chassis from cabinet.
12. Unsolder phono-pickup from terminal strip underneath chassis. Unsolder copper shield from chassis.

CHASSIS—BOTTOM VIEW



PACKARD-BELL
MODEL C-1461

PACKARD-BELL
MODEL C-1461



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 472-22

PILOT
MODEL T-500 SERIES

PILOT MODEL T-500U

TRADE NAME	Pilot, Model T-500 Series
MANUFACTURER	Pilot Radio Corp., 37-06 36th St. Long Island City N.Y.
TYPE SET	AC-DC Operated Two Band Superheterodyne Receiver
TUBES (FIVE)	Types 12SA7GT Converter, 12SK7GT IF Amp, 12SQ7GT Det.-AVC-AF 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-120 Volts AC-DC RATING .270 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1720KC SHORT WAVE 5.6-24.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at the last reference mark at the low freq. end of the dial. Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to B-.	455KC	BC	Low freq. end	Across voice coil	A1, A2 A3, A4.	Adjust for maximum output If isolation trans. is not used reduce dummy ant to .001 MFD. to reduce hum modulation.
400Ω	High side to ext. ant. lead. Low side to B-.	18.0MC	SW	18.0MC	"	A5	Adjust for maximum output
400Ω	"	18.0MC	"	Tune for maximum output.	"	A6	Rock variable and adjust for maximum output.
200MMF.	"	1500KC	BC	1500KC	"	A7	Adjust for maximum output
200MMF.	"	600KC	"	Tune for maximum output.	"	A8	Rock variable and adjust for maximum output. Recheck A7 at 1500KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PILOT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	24-61	DY-303	EL-324	AF64D4A	UP4CJ2	FP313	■ Filter
B	20	150							▲ "
C	20	25							Cath. Bypass
7	.05	600	22-31	S-6-05	TC-15	684-05	DT6S5	TP415	Line Filter
8	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
9	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
10	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	" "
11	.05	200	22-16	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
12	.2	400	22-100	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
13	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	RF Bypass Pwr. Supp.
14	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Fixed Padder SW
15	100	500	20-14	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Tone Compensation
16	35	500	20-90	MO.5-43	MS-43		5W5Q3		AVC Coupling
17	500	500	20-30	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	IF Bypass Vol. Cont.
18	100	500	20-14	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
19	10	500	20-2	MO.5-41	1FM-41	1468-00001	5W5Q1	MC215	Ant. Coupling
20	520	500							Fixed Trimmer *

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	1	36-24	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

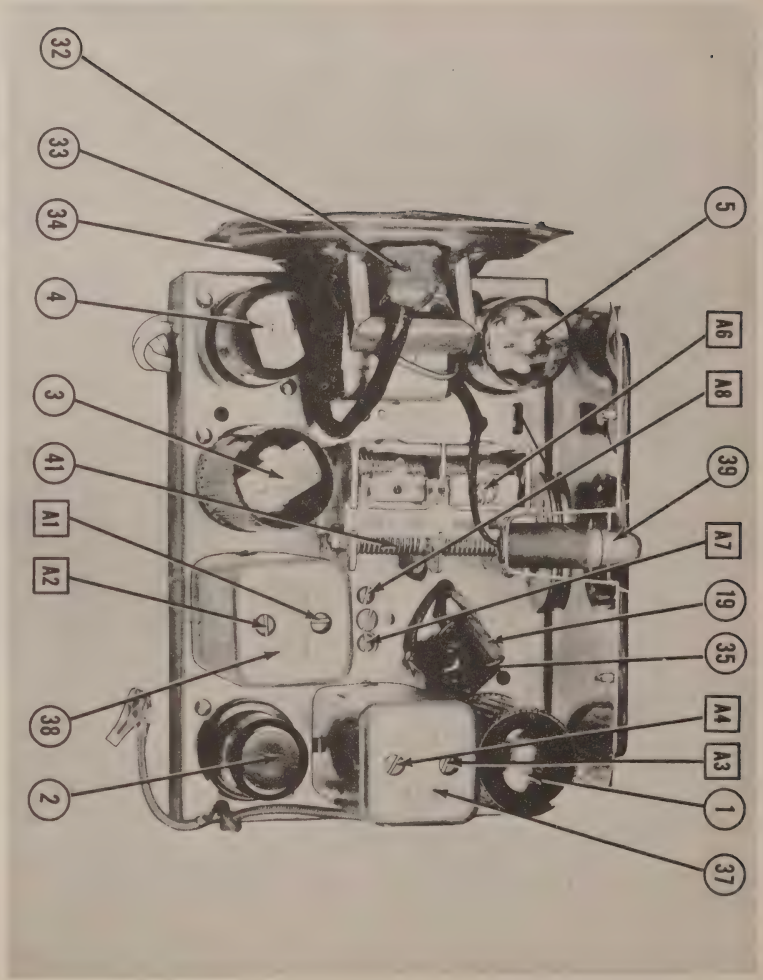
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	IRC PART No.	IDENTIFICATION CODES
22	20Ω	½	30-8	BW-½-22	Red-Blk.-Blk. Parasitic Suppressor
23	22KΩ	½	30-266	BTS 22K	Red-Red-Or. Oscillator Grid
24	220KΩ	½	30-271	BTS-220K	Red-Red-Yl. Line Isolation
25	2.2 Meg.	½	30-278	BTS-2.2 Meg	Red-Red-Grn. AVC Network
26	2.2 Meg.	½	30-278	BTS-2.2 Meg	Red-Red-Grn. " Load
27	3.9 Meg.	½	30-375	BTS-3.9 Meg	Or.-White-Grn. AF Grid
28	330KΩ	½	30-295	BTS-330K	Or.-Or.-Yl. " Plate Load
29	470KΩ	½	30-274	BTS-470K	Yl.-Vi.-Yl. Output Grid
30	120Ω	½	30-394	BW-½-120	Br.-Red-Br. " Cathode
31	150Ω	½	30-363	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PILOT PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
32	1700Ω	2.9Ω	185Ω	.5Ω	Part of 40-19	A-3676+	T22S45+		+ Drill one new mounting hole

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PILOT PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.		ST-537		
33	450Ω	2.5Ω	40-19	Mod. H4-S		
	CONE DIA.	VC DIA.				
34	4"	½"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

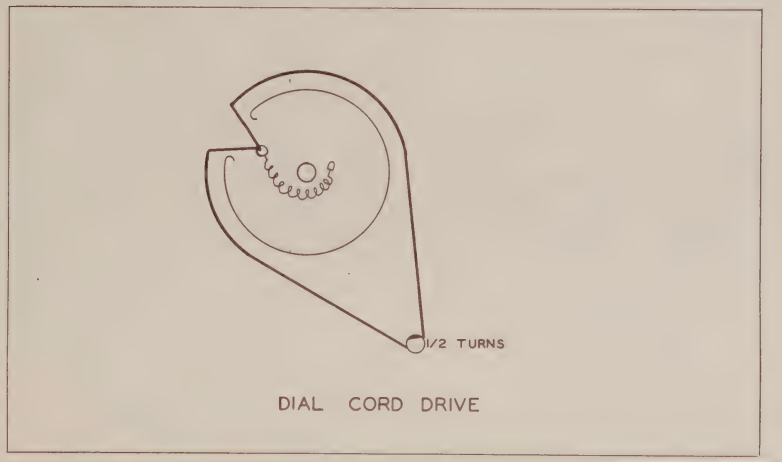
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PILOT PART No.	MEISSNER PART No.	INSTALLATION NOTES
35A	BC Ant. Coil		4Ω	70-51		35A & 35B wound on same form
35B	SW Ant. Coil		.2Ω			
36A	BC Osc. Coil		2.1Ω	72-44		36A & 36B wound on same form.
36B	SW Osc. Coil		.1Ω			
37	Input IF	8Ω	8.3Ω	273-91	16-6658	
38	Output IF	8.5Ω	8Ω	273-93	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PILOT PART No.		INSTALLATION NOTES
39	Bayonet	6-8	0.15	Brown	68-6		Type 47

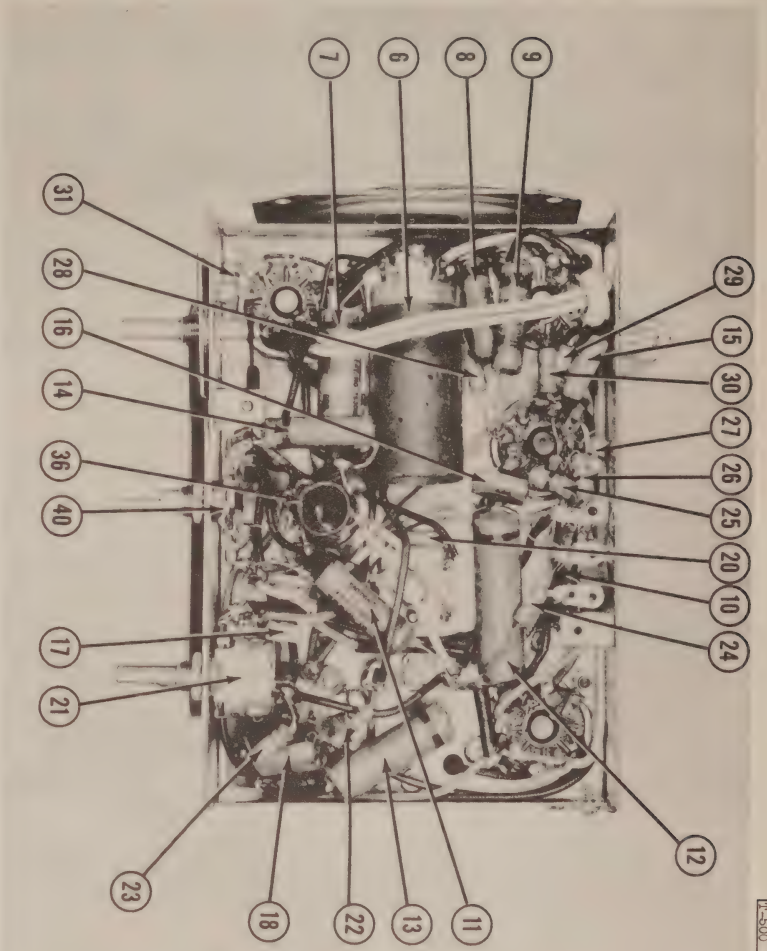
MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
40	Bandswitch	100-49	
41	2-Gang Var. Cap	26-28	(14-548 MMF, 14-548 MMF)
A7 } A8 }	Dual Trimmer	27-18	A7 BC Osc. Adjustment; A8 BC Osc. Padder



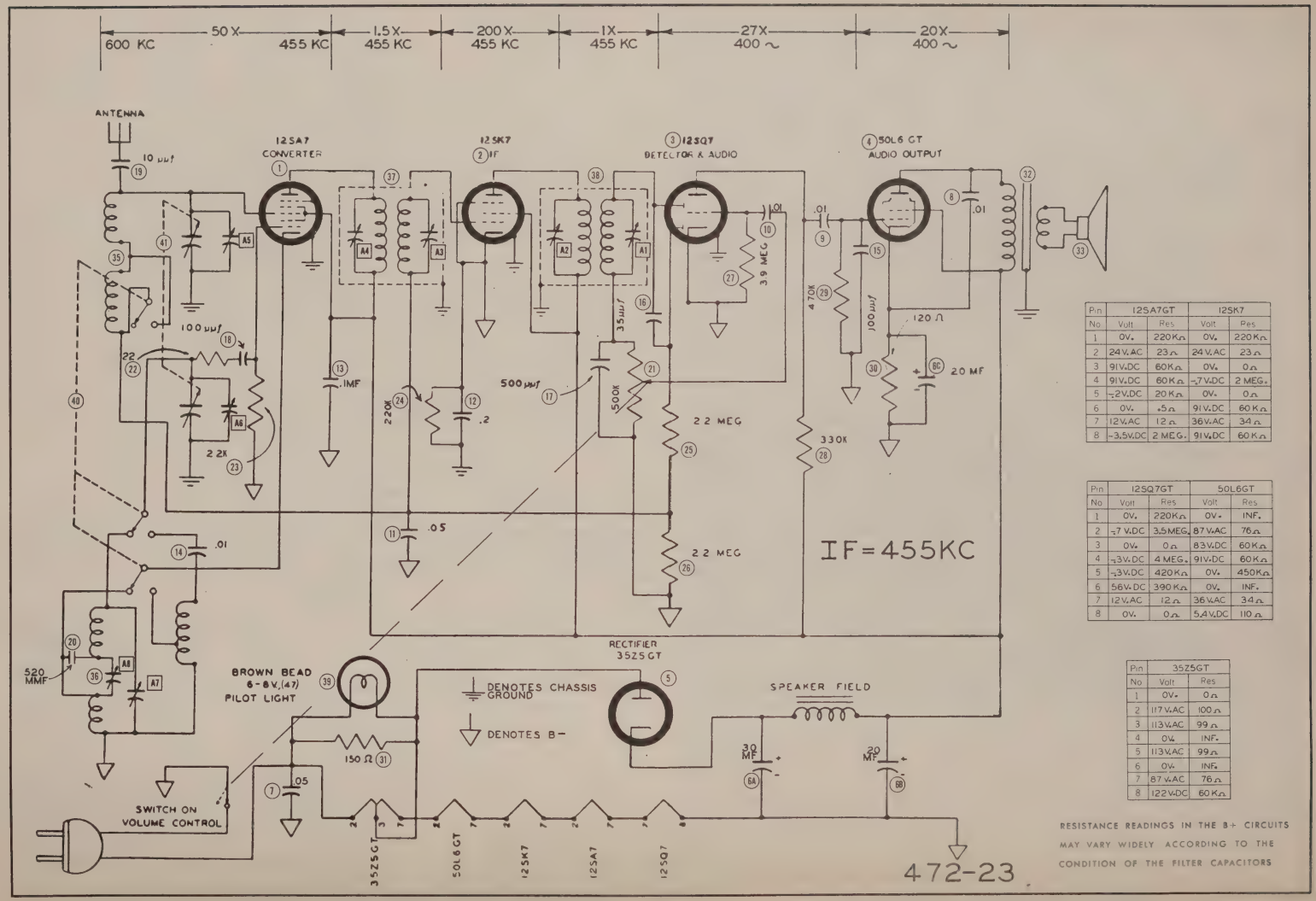
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PILOT MODEL T-500 SERIES

PILOT MODEL T-500 SERIES



Pin No	12SA7GT Volt	12SA7GT Res	12SK7 Volt	12SK7 Res
1	0V.	220KΩ	0V.	220KΩ
2	24V.AC	23Ω	24V.AC	23Ω
3	91V.DC	60KΩ	0V.	0Ω
4	91V.DC	60KΩ	-7V.DC	2 MEG.
5	-2V.DC	20KΩ	0V.	0Ω
6	0V.	.5Ω	91V.DC	60KΩ
7	12V.AC	12Ω	36V.AC	34Ω
8	-3.5V.DC	2 MEG.	91V.DC	60KΩ

Pin No	12SQ7GT Volt	12SQ7GT Res	50L6GT Volt	50L6GT Res
1	0V.	220KΩ	0V.	INF.
2	-7 V.DC	3.5MEG.	87 V.AC	76Ω
3	0V.	0Ω	83V.DC	60KΩ
4	-3V.DC	4 MEG.	91V.DC	60KΩ
5	-3V.DC	420KΩ	0V.	450KΩ
6	56V.DC	390KΩ	0V.	INF.
7	12V.AC	12Ω	36V.AC	34Ω
8	0V.	0Ω	5.4V.DC	110Ω

Pin No	35Z5GT Volt	35Z5GT Res
1	0V.	0Ω
2	117V.AC	100Ω
3	113V.AC	99Ω
4	0V.	INF.
5	113V.AC	99Ω
6	0V.	INF.
7	87 V.AC	76Ω
8	122V.DC	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

PILOT MODEL T-531AB

TRADE NAME	Pilot, Model T-530 Series
MANUFACTURER	Pilot Radio Corp., 37-06 36th St., Long Island City, N.Y.
TYPE SET	AC-DC Operated Multiband Superheterodyne Receiver
TUBES (EIGHT)	Types, 6SB7Y Converter, 6SG7 IF Amp., 6SG7 2nd IF Amp., 6SJ7 Limiter, 6H6 Discriminator, 6SJ7 1st AF Amp., 25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	100-125 Volts AC-DC or 220 Volts AC-DC (with ballast)
RATING	.520 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1720KC SHORT WAVE 5.6-18.5MC, 9.353-9.795 MC, 11.241-12.419MC FM 87.5-108.5 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. For FM alignment use a 0-200 DC microammeter in series with a 100,000 ohms resistor or a 0-20 volt DC vacuum tube voltmeter and for discriminator alignment use a 50-0-50 microammeter in series with a 100,000 ohm resistor as an output indicator. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 6SB7. Low side to B-.	455KC	BC	Low freq. end.	Across voice coil	A1,A2, A3	Adjust for maximum output If isolation trans. is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
.1 MFD.	"	10.7MC	FM	"	Microammeter between AVC line and B-.	A4,A5, A6,A7, A8,A9.	Short limiter screen grid (pin #6) to B-. Adjust for maximum reading then remove short.
.1 MFD.	"	"	"	"	Microammeter to junction of the two 330K resistors on disc. trans. and B-.	A10	Adjust for maximum reading.
.1 MFD.	"	"	"	"	Zero center scale microammeter to pin #6 of 6H6 and B-.	A11	Adjust for zero reading. Swing signal generator to 10.6 and 10.8 MC and record both readings. If these readings are not equal repeat last two steps and check again. It may be necessary to readjust A10 slightly to get these readings equal.
	No connection. (Signal generator off)		International SW	Tune near 10.7MC for maximum meter reading.	Microammeter to AVC line and B-.	A12	Adjust for minimum reading
200 MMF	High side to ant. post A. Low side to chassis.	1500KC	BC	150	Across voice coil	A13,A14	Adjust for maximum output in order given.
200 MMF	"	600KC	"	Tune for maximum output.	"	A15	Rock variable and adjust for maximum output. Repeat last two steps until no further improvement can be made.
400 ohms	"	18.0MC	International SW	18MC	"	A16,A17	Adjust for maximum output in order given.
400 ohms	"	9.5MC	31 Meter Band	9.5MC	"	A18,A19	"
400 ohms	"	12.0MC	25 Meter Band	12MC	"	A20,A21	"
300 ohms	"	98MC	FM	98MC	"	A22,A23	"
200 MMF	"	455KC	BC	Low freq.end	"	A24	Adjust for minimum output

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PARTS LIST AND DESCRIPTIONS

TUBES

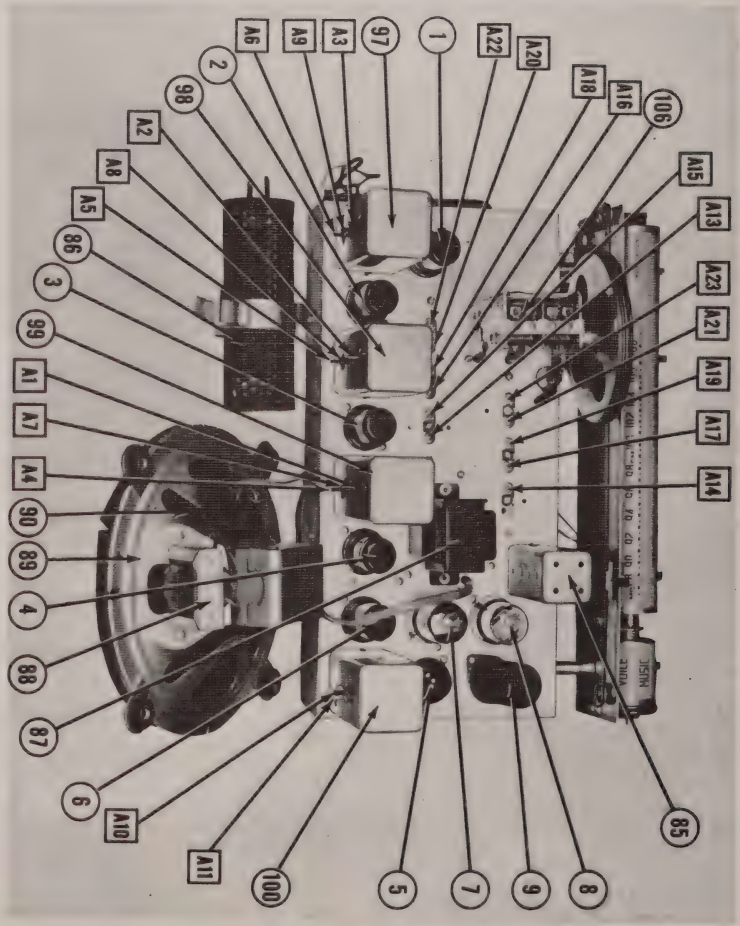
ITEM No.	USE	REPLACEMENT DATA: PILOT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SB7Y	6SB7Y	8R	
2	IF Amp.	6SG7	6SG7	8BK	
3	2nd IF Amp.	6SG7	6SG7	8BK	
4	Limiter	6SJ7	6SJ7	8N	
5	Discriminator	6H6	6H6	7Q	
6	1st AF	6SJ7	6SJ7	8N	
7	Pwr. Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	50	150	24-37	M-40-150	EL-51	AF1010D†	BR5015		▲ Filter
B	120	150		DY-8040-150	EL-123	PRS150-50†	UP6CJ44†		■ "
10	25	25	24-64	M-25-25	TA-25	PRS25-25	BR252A	TC26	Output Cath. Bypass
11	25	25	24-64	M-25-25	TA-25	PRS25-25	BR252A	TC26	Audio Cath. Bypass
12	.1	600	22-37	S-6-1	TC-1	684-.1	DT6P1	TP418	Line Bypass
13	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Filament Bypass
14	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	" "
15	.005	600	22-11	S-6-005	TC-25	684-005	DT6D5	TP408	Output Plate Bypass
16	.01	600	22-18	S-6-01	TC-11	684-01	DT6S1	TP410	Audio Coupling
17	.05	200	22-28	S-4-05	TC-15	484-05	DT6S5	TP426	Audio Screen Bypass
18	.01	400	22-17	S-4-01	TC-11	484-01	DT6S1	TP421	Line Isolation
19	.01	600	22-50	S-6-01	TC-11	684-01	DT6S1	TP410	Audio Coupling #
20	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Line Isolation
21	.003	600	22-62	S-6-003	TC-23	684-003	DT6D3	TP406	Tone Compensation
22	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
23	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Lim. Plate Decoupling
24	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Lim. Screen Bypass
25	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	2nd IF Screen Bypass
26	.05	400	22-30	S-4-05	TC-15	484-05	DT4S5	TP426	2nd IF Screen Bypass
27	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	2nd IF Cath. Bypass
28	.05	400	22-30	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
29	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	RF Bypass Pwr. Supp.
30	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	1st IF Screen Bypass
31	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	1st IF Cath. Bypass
32	.05	400	22-30	S-4-05	TC-15	484-05	DT4S5	TP426	Line Isolation
33	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	" "
34	.05	400	22-30	S-4-05	TC-15	484-05	DT4S5	TP426	Conv. Cath. Bypass SW
35	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Conv. Plate Decoupling
36	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	Conv. Screen Bypass
37	.01	600	22-50	S-6-01	TC-11	684-01	DT6S1	TP410	Line Isolation
38	.01	400	22-17	S-4-01	TC-11	484-01	DT4S1	TP421	AVC Filter
39	5000	500	20-115	MW.5-25	1FM-25	1467-005	1D5D5	MC465	Filament Bypass
40	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
41	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
42	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
43	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Tone Compensation
44	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
45	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	" "
46	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Disc.
47	400	500	20-121	M0.5-34	1FM-34	1468-0004	5W5T4	MC243	IF Bypass Vol. Cont.
48	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	2nd IF Screen Bypass
49	150	500	20-120	M0.5-315	1FM-315	1468-00015	5W5T15	MC236	1st IF Screen Bypass
50	5000	500	20-115	MW.5-25	1FM-25	1467-0005	5W5T5	MC465	Line Isolation
51	3300	500	21-35						Fixed Padder SW
52	250	500	20-22	M0.5-325	1FM-325	1468-00025	5W5T25	MC240	Conv. Screen Bypass
53	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
54	350	500	20-137						Fixed Padder BC
55	10	500	21-36	M08.5-41	MS-41	1469-00001	5R5Q1	MCB215	Ant. Coupling
56	35	500	20-9						Fixed Trimmer BC
57	500	500	20-30	M0.5-35	1FM-35	1468-0005	5W5T5	MC245	FM Ant.
58	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
107	100	500	20-14	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Tone Compensation
108	500	500	20-30	M0.5-35	1FM-35	1468-0005	5W5T5	MC245	Line Isolation ‡

Replacement must have shield.
† Parallel sections to obtain desired capacity.
‡ Not used in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
59A	1 Meg.	1	36-21	TM238	D13-137X		Volume Control
B	Shaft		Not Req.	S51	A & C3		Attach to 59A per instructions
C	Switch		" "	M26	41		" " " "
60	500KΩ	1	37-12				Tone Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PILOT PART No.	IRC PART No.	
61	150Ω	½	31-81	BW-½-150	Br.-Grn.-Br. Parasitic Suppressor
62	220KΩ	½	30-271	BTS-220K	Red-Red-Yl. AVC Network
63	220KΩ	½	30-271	BTS-220K	Red-Red-Yl. Converter Grid
64	68KΩ	½	30-268	BTS-68K	Blue-Gray-Or. Line Isolation
65	10KΩ	½	30-248	BTS-10K	Br.-Blk.-Or. Oscillator Grid
66	1000Ω	½	30-284	BTS-1000	Br.-Blk.-Red Converter Screen Dropping
67	1000Ω	½	30-284	BTS-1000	Br.-Blk.-Red Converter Plate Dropping
68	150Ω	½	31-81	BW-½-150	Br.-Grn.-Br. 1st IF Cathode
69	150Ω	½	31-81	BW-½-150	Br.-Grn.-Br. 2nd IF Cathode
70	1 Meg.	½	30-277	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
71	470KΩ	½	30-274	BTS-470K	Yl.-Vi.-Yl. Diode Load
72	15KΩ	½	30-284	BTS-15K	Br.-Grn.-Or. Bleeder
73	47KΩ	½	30-287	BTS-47K	Yl.-Vi.-Or. Limiter Screen Dropping
74	47KΩ	½	30-287	BTS-47K	Yl.-Vi.-Or. Limiter Plate Dropping
75	330KΩ	½	30-296	BTS-330K	Or.-Or.-Yl. Discriminator Diode Load
76	330KΩ	½	30-296	BTS-330K	Or.-Or.-Yl. " "
77	47KΩ	½	30-287	BTS-47K	Yl.-Vi.-Or. Discriminator RF Filter
78	22KΩ	½	30-286	BTS-22K	Red-Red-Or. Tone Compensation
79	47KΩ	½	30-287	BTS-47K	Yl.-Vi.-Or. "
80	3.9 Meg.	½	30-375	BTS-3.9 Meg.	Or.-White-Grn. 1st AF Grid
81	2200Ω	½	30-380	BTS-2200	Red-Red-Red 1st AF Cathode
82	1 Meg.	½	30-277	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Screen Dropping
83	220KΩ	½	30-271	BTS-220K	Red-Red-Yl. 1st AF Plate Load
84	150Ω	½	31-81	BW-½-150	Br.-Grn.-Br. Output Cathode
85	100Ω	25	31-77	DG-100	Line Dropping
86	130-130Ω	50-50			" " -See Note 1

Note 1 - Used for 220 volts operation.

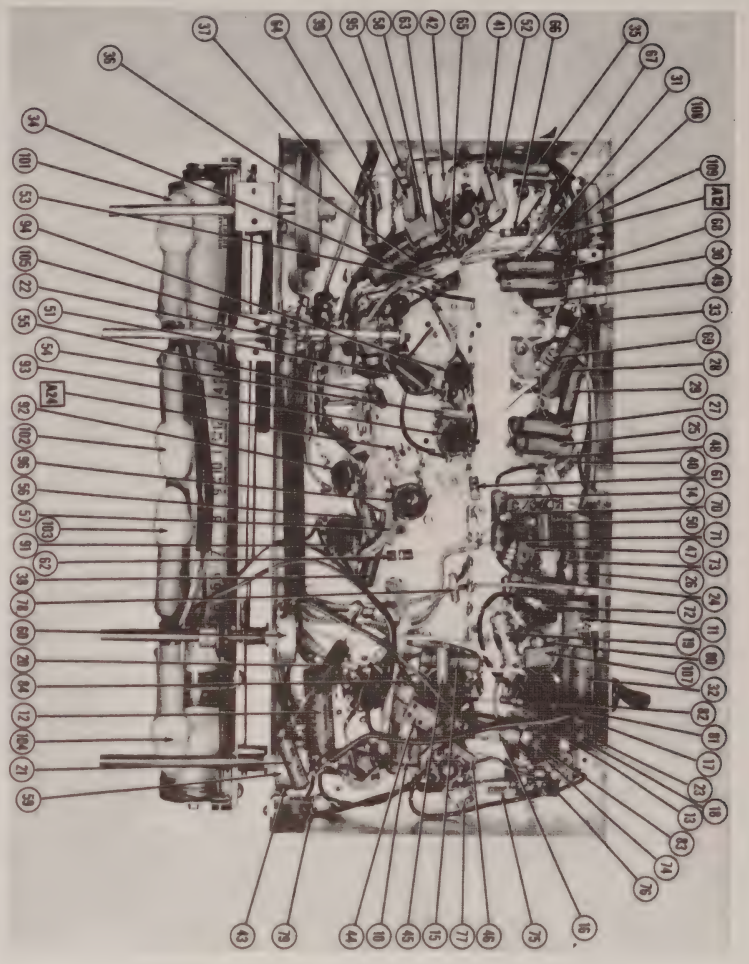
FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000~	PILOT PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
87	.085A	110Ω	4.5 Henries	57-9	C-2303§		§Drill one new mounting hole

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PILOT PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
88	2800Ω	3.8Ω	190Ω	.8Ω	Part of 41-16	A-3878	T22S45		

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

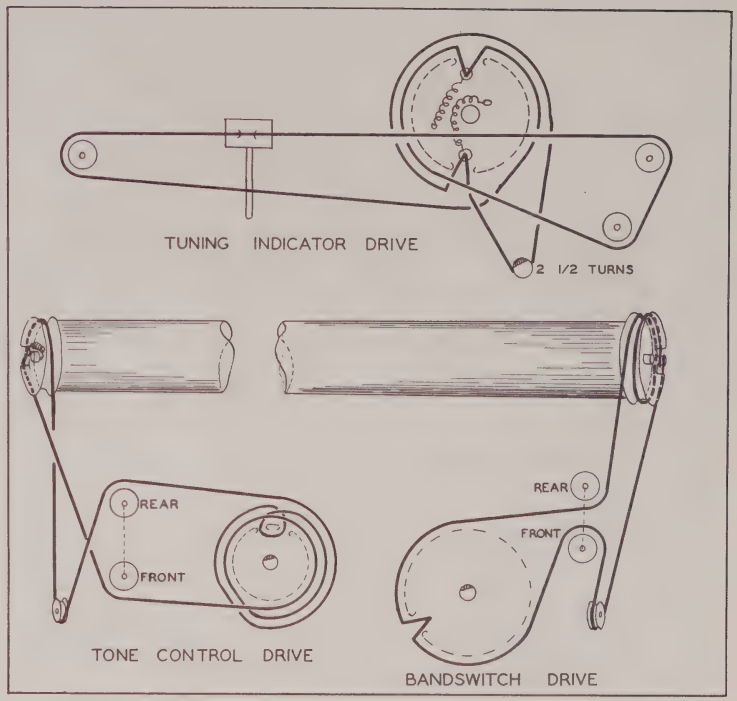
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	0V.	25 V. AC	122 V. DC	105 V. DC	-3.5 V. DC	0V.	19 V. AC	-2 V. DC
2	6SG7	0V.	31 V. AC	1 V. DC	-.1 V. DC	1 V. DC	103 V. DC	25 V. AC	103 V. DC
3	6SG7	0V.	36 V. AC	1 V. DC	-.1 V. DC	1 V. DC	103 V. DC	31 V. AC	103 V. DC
4	6SJ7	0V.	12 V. AC	0V.	-6 V. DC	0V.	0V.	19 V. DC	122 V. DC
5	6H6	0V.	6 V. AC	-6 V. DC	0V.	-6 V. DC	0V.	0V.	0V.
6	6SJ7	0V.	12 V. AC	0V.	0V.	1.2 V. DC	18 V. DC	6 V. AC	32 V. DC
7	25L6GT	0V.	52 V. AC	113 V. DC	123 V. DC	0V.	0V.	36 V. AC	84 V. DC
8	25Z6GT	0V.	77 V. AC	117 V. AC	132 V. DC	117 V. DC	0V.	52 V. AC	132 V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	67K Ω	16 Ω	45K Ω	45K Ω	93K Ω	1 Ω	12 Ω	2 MEG.
2	6SG7	67 K Ω	18 Ω	140 Ω	1.8 MEG.	140 Ω	45 K Ω	16 Ω	45 K Ω
3	6SG7	67K Ω	21 Ω	140 Ω	1.8 MEG.	140 Ω	45 K Ω	18 Ω	45 K Ω
4	6SJ7	67K Ω	8 Ω	0 Ω	560K Ω	0 Ω	0 Ω	12 Ω	92 K Ω
5	6H6	67K Ω	4 Ω	160 K Ω	40 K Ω	160 K Ω	0 Ω	0 Ω	0 Ω
6	6SJ7	67K Ω	8 Ω	0 Ω	4 MEG.	2.2 K Ω	1 MEG.	4 Ω	265 K Ω
7	25L6GT	67K Ω	34 Ω	45 K Ω	45 K Ω	460 K Ω	10 Ω	21 Ω	140 Ω
8	25Z6GT	INF.	44 Ω	78 Ω	45 K Ω	78 Ω	0 Ω	34 Ω	45 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PILOT PART No.	JENSEN PART No.		INSTALLATION NOTES
89	FIELD IN	VC IMP. 3.5Ω	41-16	ST-115* Mod. P8-V		*New mounting brackets must be added.
90	CONE DIA. 7"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

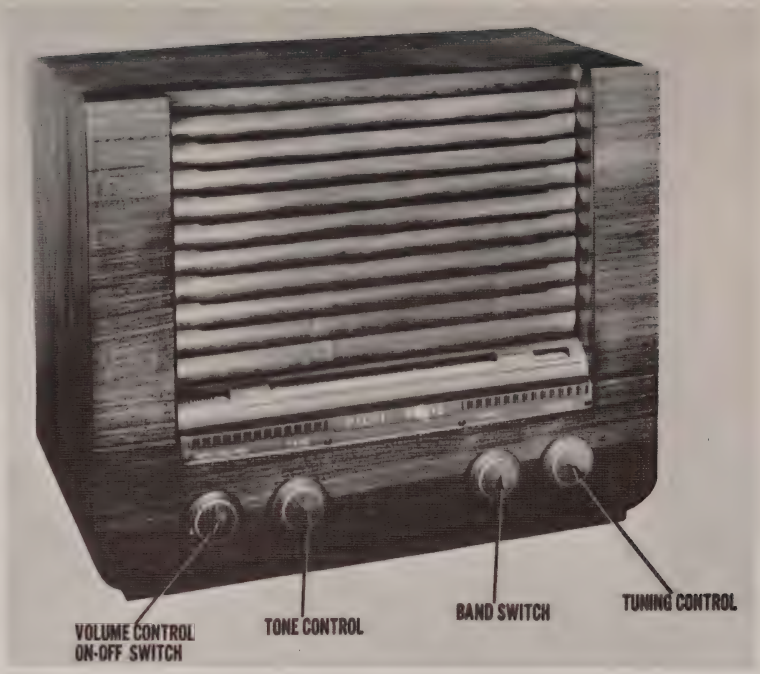
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PILOT PART No.	MEISSNER PART No.	INSTALLATION NOTES
91	BC Ant. Coil	30Ω	3.9Ω	70-47		
92	SW Ant. Coil	1.5Ω	.1Ω	70-48		
93	BC Osc. Coil	.1Ω	2.5Ω	72-39		
94	SW Osc. Coil		.1Ω	72-40		
95	Osc. Cath."		1.8Ω	76-11		
96	IF Trap		30Ω	79-59		
97	Input IF	.5Ω	.5Ω	273-73		
98	Inter IF		2Ω	273-74		
99	Output IF	2Ω	.5Ω	273-76		
100	Discriminator	.5Ω	.5Ω	30-285		

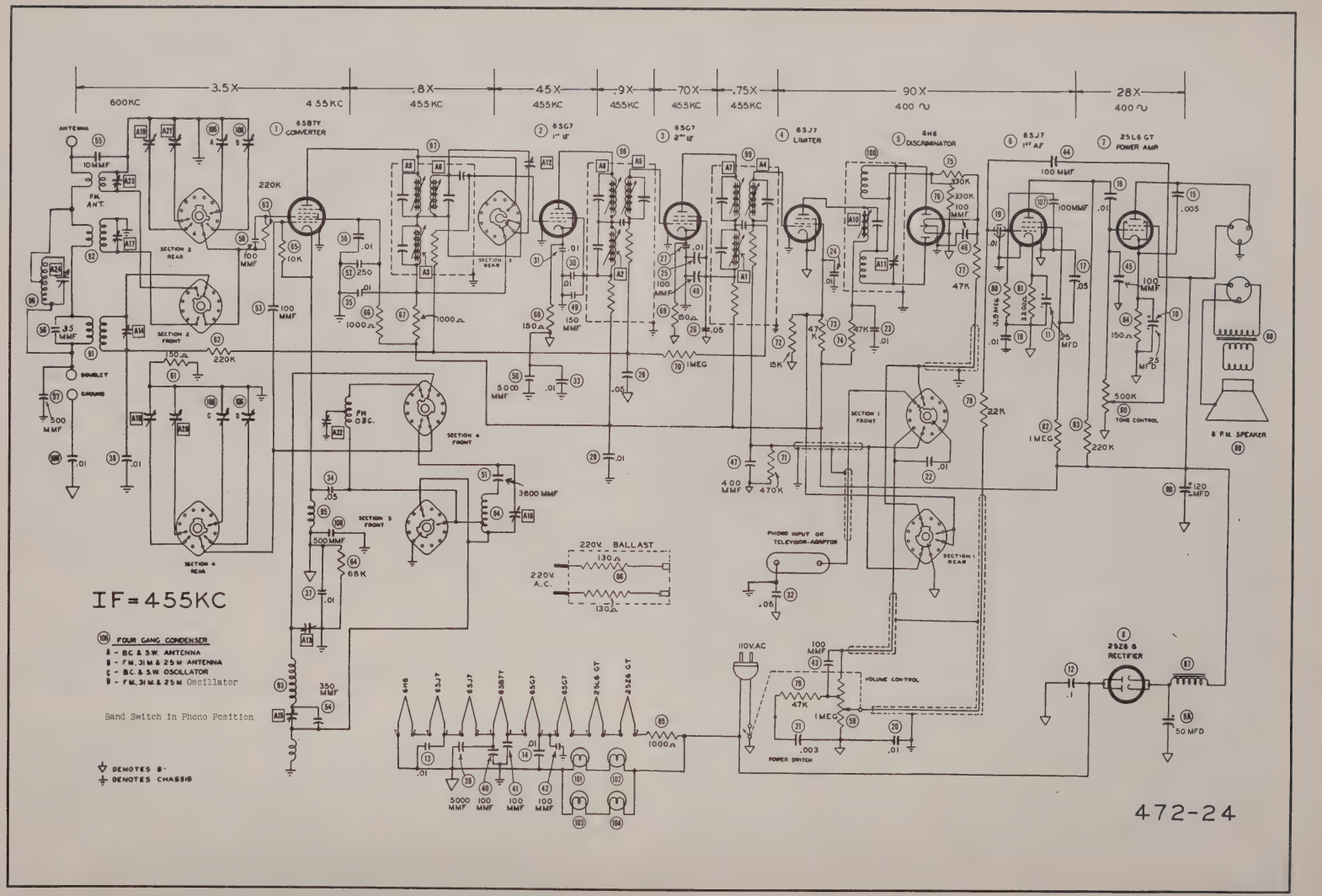
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PILOT PART No.		INSTALLATION NOTES
101	Screw	110	.06				Type C-7 Frosted Glass
102	"	110	.06				" " " "
103	"	110	.06				" " " "
104	"	110	.06				" " " "

MISCELLANEOUS

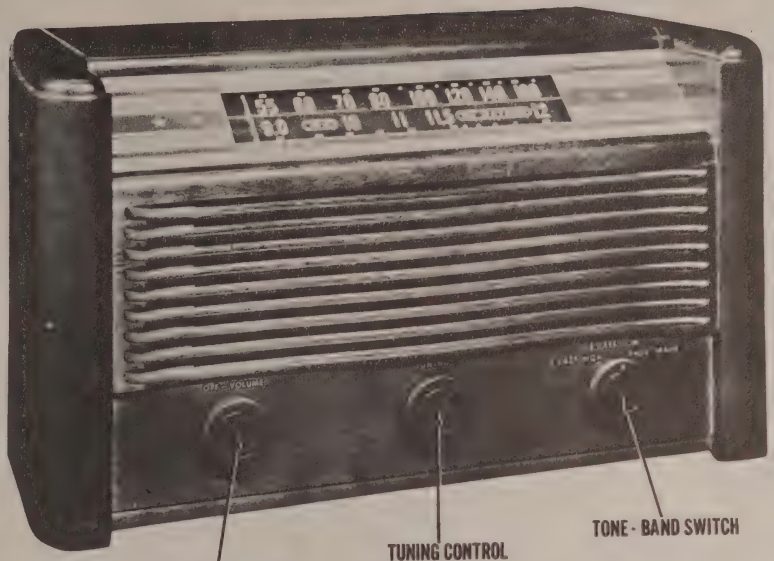
ITEM No.	PART NAME	PILOT PART No.	NOTES
105	Bandswitch		
106	4-Gang Var. Cap		(10-405 MMF, 10-405 MMF, 8-28 MMF, 8-28 MMF.)





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to B-.

RADIOLA
MODELS 61-5, 61-10



RADIOLA
MODELS 61-5, 61-10

RADIOLA MODEL 61-5

TRADE NAME	Radiola, Models 61-5 (Ch. RC- 1023), 61-10 (CH. RC-1023B)
MANUFACTURER	Radio Corp, of America, Home Instrument Division, Camden, N. J.
TYPE SET	AC-DC Operated Two Band Superheterodyne Receiver-Self Contained Loop Ant.
TUBES (SIX)	Types 12SG7 RF Amp, 12SA7 Converter, 12SK7 IF Amp, 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .265 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC — SHORT WAVE 9-11.8 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum and output from signal generator as low as possible for all adjustments. Adjust dial pointer to left (max. cap.) mark with rotor in full mesh. Tuning dial (glass plate) may be removed from cabinet and temporarily attached to dial back plate for calibration. Use insulated alignment screwdriver.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 12SA7. Low side to B-.	455KC	BC (max. C.C.W.)	Quiet point at 1600KC end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output See Note A.
220MMFD	High side to ant. term. Low side to B-.	600KC	"	600KC	"	A5	Rock dial and adjust for maximum output.
220MMFD	"	1300KC	"	1300KC	"	A6	Adjust for maximum output
220MMFD	"	"	"	"	"	A7	" " " "
							Repeat A5, A6 and A7 for exact calibration.
1 MFD.	"	11.8MC	SW (max. C.W.)	11.8MC	"	A8	Rock gang and adjust for maximum output. See Note B.
47 MMFD	"	"	"	"	"	A9	Rock gang and adjust for output. Repeat A8 and A9 adjustments.

Note A - Use isolation transformer if available. If not, isolation capacitor must be connected between signal generator ground lead and receiver B-. Also decrease dummy ant. to .001 MFD. to prevent excessive hum modulation.

Note B - Use min. cap. peak if two can be obtained. Check for selection of correct peak by tuning receiver to approximately 10.9 MC where a weaker signal should be received. C.C.W.-Counter-Clockwise C.W.-Clockwise.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: RADIOLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SG7	12SG7	8BK	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RADIOLA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	39152	DSB-5030-150	TA-530	PRSA150-40-40	BRD3515	2N520	Filter-Green 86053-1
B	50	150							" -Red
8	.05	400	70615	S-4-05	TC-15	484-05	DT4S5	TF426	Line Filter
9	.02	600	70711	S-6-02	TC-12	684-02	DT6S2	TP412	Output Plate Bypass
10	.005	600	70627	S-6-005	TC-25	684-005	DT6D5	TP408	Audio Coupling
11	.0018	600	70712	S-6-002	TC-22	684-002	DT6D2	TP405	Tone Compensation
12	.02	600	70711	S-6-02	TC-12	684-02	DT6S2	TP412	Audio Coupling
13	.25	400	70618	S-4-25	TC-2	484-.25	DT4P25	TP430	RF Bypass Pwr. Supp.*
14	.1	400	70617	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Isolation
15	.035	600	70635	S-6-04	TC-14	684-04	DT6S4	TP414	AVC Filter
16	.01	600	70652	S-6-01	TC-11	684-01	DT6S1	TP410	Osc. Coil Shunt. SW
17	.005	600	70627	S-6-005	TC-25	684-005	DT6D5	TP408	" " " "
18	.01	600	70652	S-6-01	TC-11	684-01	DT6S1	TP410	Ant. Isolation
19	.1	400	70617	S-4-1	TC-1	484-.1	DT4P1	TP428	RF Plate Decoupling
20	330	500	39640	MO.5-33	1FM-33	1468-0003	5W5T3	MC241	Audio Grid Bypass
21	22	500	39612						Fixed Trimmer
22	56	500	39622	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
23	150	500	39632	MO.5-315	1FM-315	1468-00015	5W5T15	MC236	Fixed Padder
24	150	500	39632	MO.5-315	1FM-315	1468-00015	5W5T15	MC236	RF Coupling

*May be .1 MFD or .2 MFD in some models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	36242	MR48 #	D13-133 #	M-60-Z #	Volume Control. (84701-48) See Note
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 25A per instructions.
C	Switch		" "	M25T	47	SW-56	" " " " "

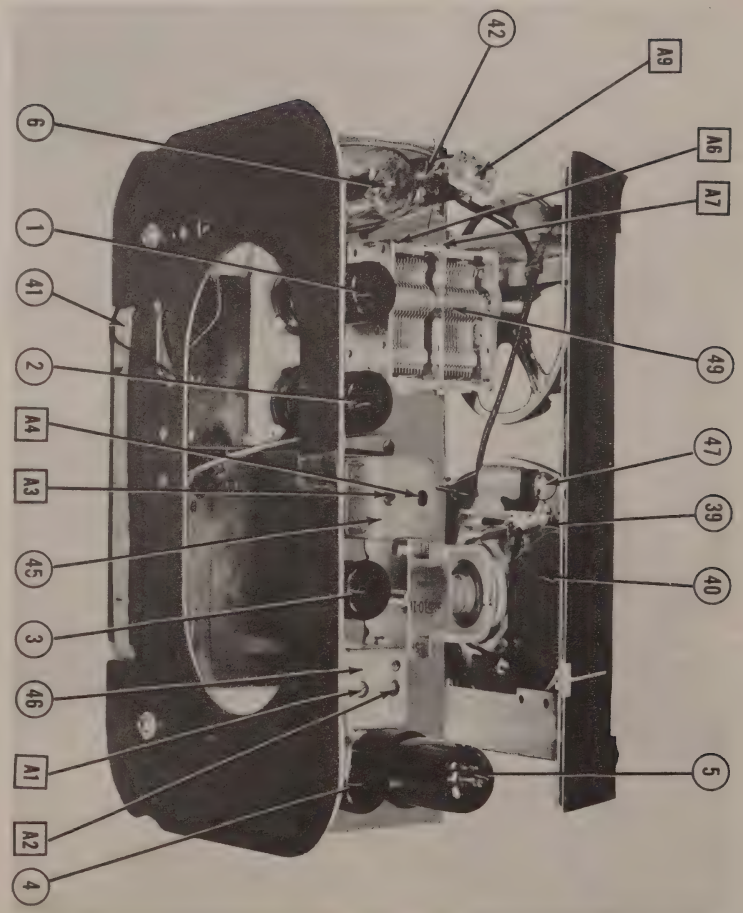
Note. Some models use 47KΩ fixed stop between center and right hand terminals.
" " have an external 47KΩ resistor in series with volume control contained within IF Can.

When original control has fixed stop as explained above, install a 47KΩ resistor in series with the right hand terminal of the control. and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RADIOLA PART No.	IRC PART No.	IDENTIFICATION CODES
26	120Ω	1/4	30189	BW-½-120	Br.-Red-Br. RF Cathode
27	1200Ω	1/4	30731	BTS-1200	Br.-Red-Red " Plate Load
28	220KΩ	1/4	14583	BTS-220K	Red-Red-Yl. Converter Grid
29	22KΩ	1/4	30492	BTS-22K	Red-Red-Or. Oscillator "
30	15 Meg.	1/4	38785	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
31	2 Meg.	1/4		BTS-2.2 Meg.	Red-Blk.-Grn. " "
32	4.7 Meg.	1/4	30931	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
33	220KΩ	1/4	14583	BTS-220K	Red-Red-Yl. " " Plate Load
34	470KΩ	1/4	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
35	120Ω	1/4	30189	BW-½-120	Br.-Red-Br. " Cathode
36	1200Ω	1	6134	BTA-1200	Br.-Red-Red Filter
37	220KΩ	1/4	14583	BTS-220K	Red-Red-Yl. Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RADIOLA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA	INSTALLATION NOTES
38	2220Ω	3.4Ω	235Ω	.86Ω	36800	A3676‡			Original Part No. 352605 ‡Due to the tapped primary of the original, when using this replacement additional filtering may be necessary.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RADIOLA PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
39	FIELD FM	VC IMP. 3.4Ω	70413	Mod. P8-X ST-1051		Original Part No. 92510-1 †Bracket Improvision Necessary.
40	CONE DIA. 4½"	VC DIA. ½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

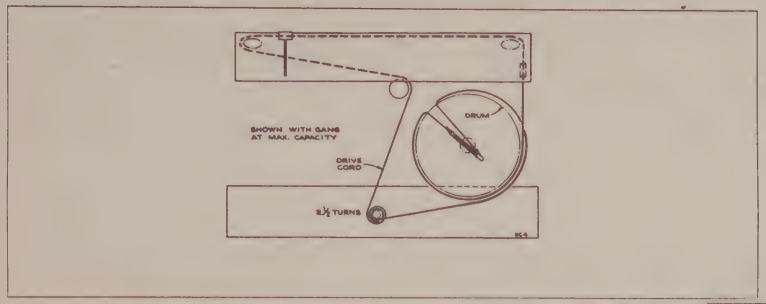
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RADIOLA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
41	Loop	0Ω	1.1Ω	39841		
42	Ant. Coil	2.3Ω	0Ω	70416		
43	Peaking Coil	1.5Ω		70418		
44	Osc. Coil	1Ω	6Ω	39892		
45	Input IF	8Ω	8Ω	70411	16-5740	
46	Output IF	15Ω	15Ω	70412	16-6670	

DIAL LIGHT

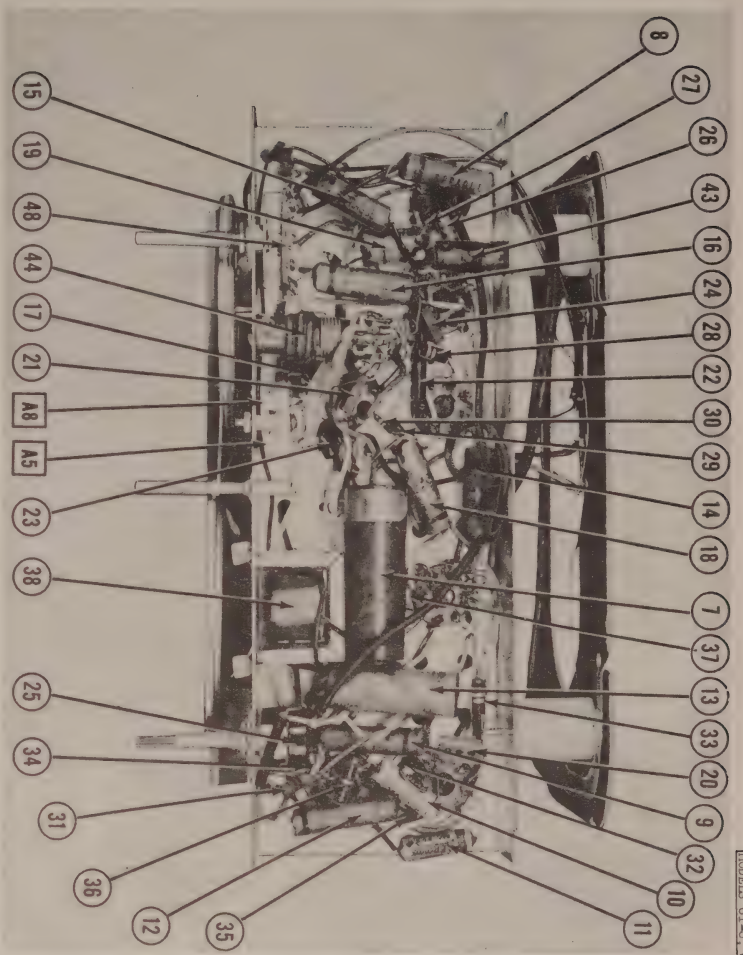
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RADIOLA PART No.	REPLACEMENT DATA	INSTALLATION NOTES
47	Bayonet	6-8	0.2	White			Type 51

MISCELLANEOUS

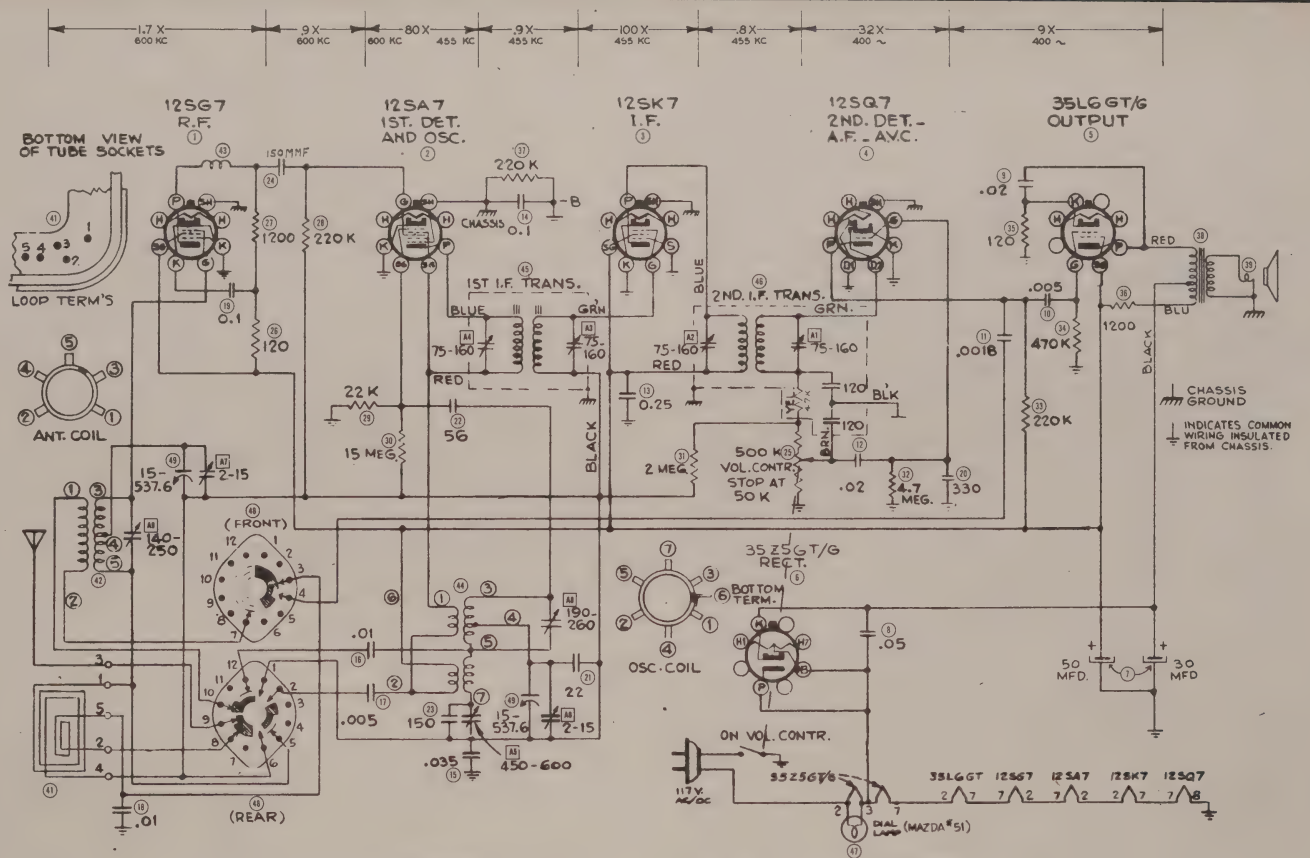
ITEM No.	PART NAME	RADIOLA PART No.	NOTES
48	Tone-Bandswitch	39837	
49	2-Gang Var. Cap.	70700	Includes BC Osc. & Ant. Adj.
A8	Dual Trimmer	39839	(450-600 MMF)
A8			(190-260 MMF)
A9	Trimmer	70417	(140-250 MMF)
	Dial Scale	70706	(Ch. RC-1023)
	" "	71324	(Ch. RC-1023B)



CHASSIS—BOTTOM VIEW



RADIOLA MODELS 61-5, 61-10



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	-1 V.DC	38 V.AC	0 V.	-6 V.DC	0 V.	85 V.DC	50 V.AC	77 V.DC
2	12SA7	-1 V.DC	24 V.AC	84 V.DC	85 V.DC	-4 V.DC	0 V.	38 V.AC	-3 V.DC
3	12SK7	-1 V.DC	24 V.AC	0 V.	-6 V.DC	0 V.	85 V.DC	12 V.AC	85 V.DC
4	12SQ7	-1 V.DC	-3 V.DC	0 V.	-4 V.DC	0 V.	60 V.DC	12 V.AC	0 V.
5	35L6GT	0 V.	88 V.AC	118 V.DC	85 V.DC	0 V.	124 V.DC	50 V.AC	4.8 V.DC
6	35Z5GT	0 V.	117 V.AC	113 V.AC	0 V.	113 V.AC	84 V.DC	88 V.AC	124 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	190 KΩ	37Ω	0Ω	1.9 MEGΩ	0Ω	90 KΩ	48Ω	90 KΩ
2	12SA7	190 KΩ	24Ω	90 KΩ	90 KΩ	23 KΩ	0Ω	37Ω	2 MEGΩ
3	12SK7	190 KΩ	24Ω	0Ω	1.9 MEGΩ	0Ω	90 KΩ	12Ω	90 KΩ
4	12SQ7	190 KΩ	4.6 MEGΩ	0Ω	460 KΩ	0Ω	310 KΩ	12Ω	0Ω
5	35L6GT	INFΩ	77Ω	90 KΩ	90 KΩ	400 KΩ	90 KΩ	46Ω	110Ω
6	35Z5GT	INFΩ	102Ω	100Ω	INFΩ	100Ω	90 KΩ	77Ω	90 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

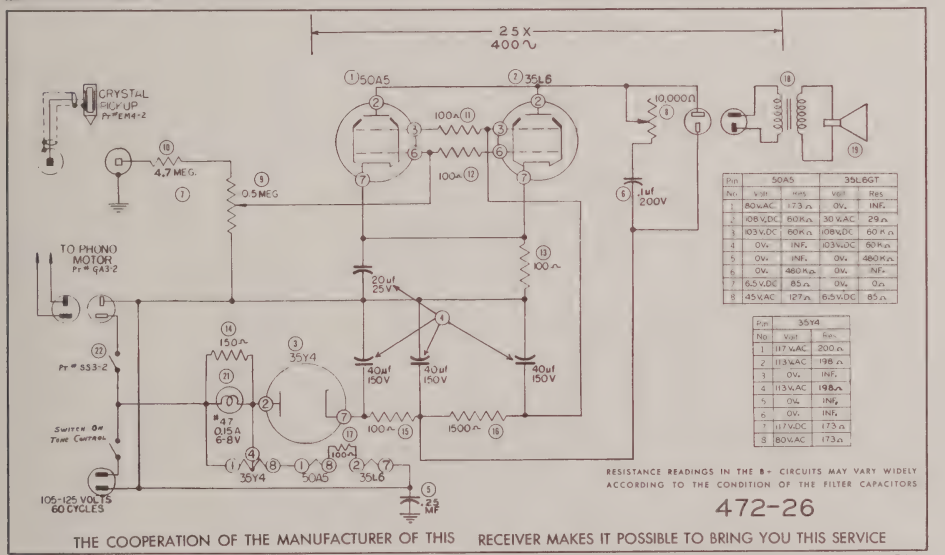
472-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TEMPLE MODEL F-301

TRADE NAME	Temple, Model F-301
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier and Speaker
TUBES (THREE)	Types 50A5 or 50L6GT Power Output, 35A5 or 35L6GT Power Output 35Y4 or 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC RATING .250 Amp. @ 117 Volts AC



Pin No.	50A5 Volts	50A5 Res	35L6GT Volts	35L6GT Res
1	80 V.AC	173 Ω	0V.	INF.
2	108 V.DC	60K Ω	30 V.AC	29 Ω
3	103 V.DC	60K Ω	108 V.DC	60 K Ω
4	0V.	INF.	103 V.DC	60 K Ω
5	0V.	INF.	0V.	480K Ω
6	0V.	480 K Ω	0V.	INF.
7	6.5 V.DC	85 Ω	0V.	0 Ω
8	45 V.AC	127 Ω	6.5 V.DC	85 Ω

Pin No.	35Y4 Volts	35Y4 Res
1	117 V.AC	200 Ω
2	113 V.AC	198 Ω
3	0V.	INF.
4	113 V.AC	198 Ω
5	0V.	INF.
6	0V.	INF.
7	117 V.DC	173 Ω
8	80 V.AC	173 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-26

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Power Output	50A5	50A5	6AA	
1B	Power Output	50L6GT	50L6GT	7AC	
2A	Power Output	35A5	35A5	6AA	
2B	Power Output	35L6GT	35L6GT	7AC	
3A	Rectifier	35Y4	35Y4	5AL	
3B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150	CE1-4A83	DY-419	EL-443	AF886D4A	UP7DJ19	FP409	●Filter
B	40	150							■ "
C	40	150							▲ "
D	20	25							Cath. Bypass
5	.25	400		S-4-25	TC-2	484-.25	DT4P25	TP430	Line Isolation
6	.1	200	CP10W41S4X	S-4-1	TC-1	484-.1	DT4P1	TP428	Tone Compensation
7	470	500		M0.5-35	1FM-35	1468-0005	5W5T5	MC245	Phono Coupling *

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
8A	10KΩ	1	AP5-103-B	MR18	D13-116	M-81-Z	Tone Control.
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 8A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
9A	500KΩ	1	RP6-504-B	MR48	D13-133	M-60-Z	Volume Control.
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 9A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
10	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vl.-Grn. Series Phono
11	100Ω	½	RC20BF101M	BW-½-100	Br.-Blk.-Br. Parasitic Suppressor
12	100Ω	½	RC20BF101M	BW-½-100	Br.-Blk.-Br. " "
13	100Ω	1	RC30BF101M	BW-1-100	Br.-Blk.-Br. Output Cathode
14	150Ω	1		BW-1-150	Br.-Grn.-Br. Pilot Light Shunt
15	100Ω	½	RC20BF101M	BW-½-100	Br.-Blk.-Br. Filter
16	1500Ω	½	RC20BF152M	BTS-1500	Br.-Grn.-Red "
17	100Ω	10		AB-100	Filament Dropping

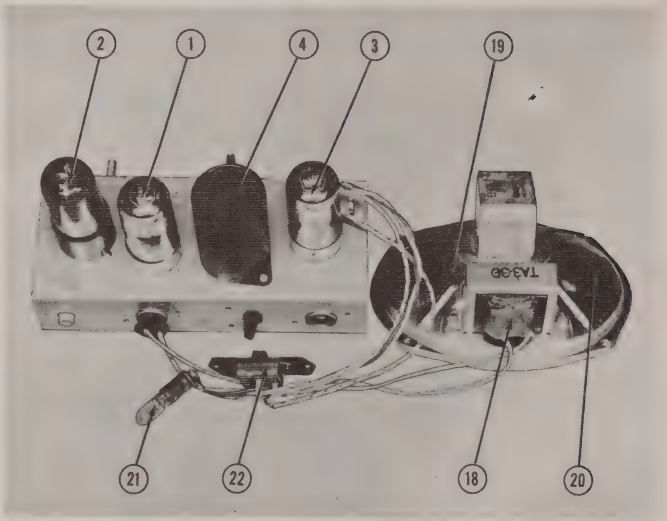
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
18	1000Ω	3.2Ω	48Ω	.5Ω	TA3-3	A-3865	T22S45		

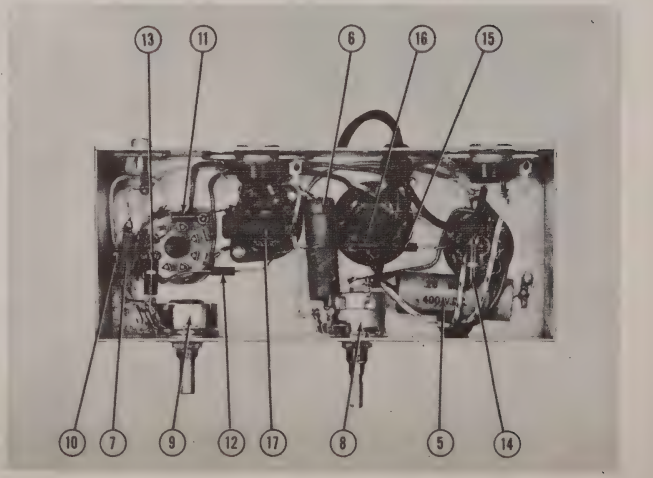
SPEAKER

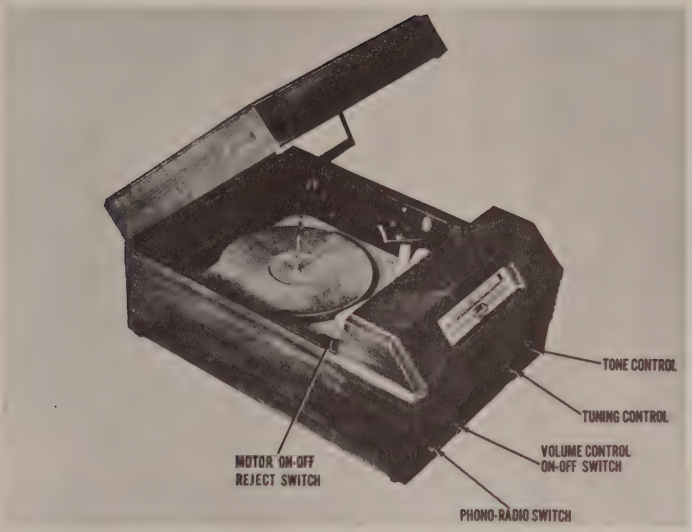
ITEM No.	RATINGS		REPLACEMENT DATA: TEMPLE PART No.	JENSEN PART No.		INSTALLATION NOTES
19A	FIELD	VC IMP.		ST-108		
B	FM	3.0Ω	EH-65-3	Mod. P6-X		
			EH-65-2			Alternate Speaker
20	CONE DIA. 6"	CONE DIA. ½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





TEMPLE MODEL F-617

TRADE NAME	Temple Model, F-617
MANUFACTURER	Templetone Radio Mfg., Corp., New London, Conn.
TYPE SET	AC Operated Combination Automatic Phono-Superheterodyne Receiver with Self Contained Loop Antenna
TUBES (SIX)	Types 12SK7 RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	117 Volts AC RATING .275 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end of dial. (Variable fully open)	Across Voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ext. ant lead. Low side to chassis.	1600KC	"	"	A5	"
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	"

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs and felt washers.
2. Remove the four wood screws from the phono-motor board.
3. Remove the two Phillips head screws from the back radio board. Remove board.
4. Remove three Phillips head screws holding top ratchet hinge assembly.
5. Lift up phono-motor board on its side and disconnect the phono-motor plug and phono pick-up plug from the receiver chassis.
6. Remove phono-motor board from cabinet.
7. Remove three Phillips head screws from side panel board. Remove panel board. Now remove loop antenna which is held to cabinet by two clip staples.
8. Pull line cord through the bottom round hole on the left side. (Cabinet viewed from front).
9. Remove three Phillips head screws and washers holding receiver chassis to cabinet. Remove chassis and loop antenna from cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	80	150	161.522	DY-804020-150	EL-123	AF844D	UP8CJ44		■ Filter
B	40	150			EL-24	PRS150-50 +			▲ "
C	20	150					BR2015		"
8	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Line Filter
9	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
10	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	Tone Compensation
11	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	Audio Coupling
12	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	" "
13	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Bias Filter
14	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	IF Screen Bypass
15	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	AVC Filter
16	.25	400		S-4-25	TC-2	484-.25	DT4P25	TP430	Line Isolation
17	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	RF Bypass Pwr. Supp.
18	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Output Grid Bypass
19	10	500		M0.5-41	1FM-41	1468-00001	5W5Q1	MC215	Fixed Trimmer
20	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor
21	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling

+ Parallel sections to obtain desired capacity.

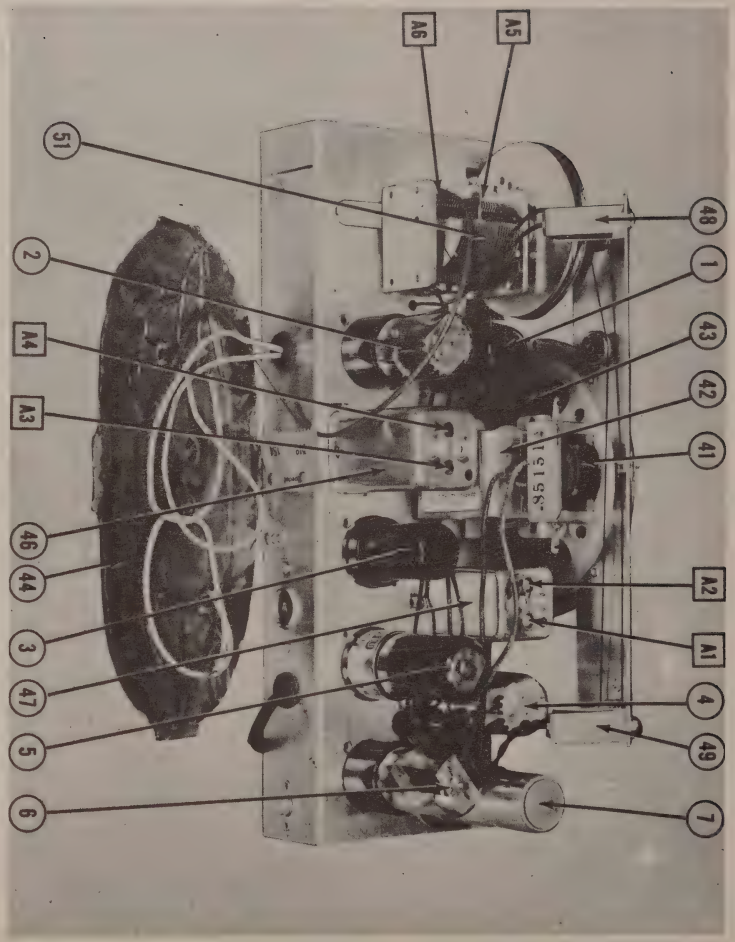
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	RP5-2	MK401	D13-133	AM-60-Z	Volume Control.
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 22A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "
23A	500KΩ		RP6-504B	MK401	D13-133	AM-60-Z	Tone Control.
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
24	330Ω	½		BTS-330	Or.-Or.-Red RF Plate Load
25	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
26	4700Ω	½		BTS-4700	Yl.-Vi.-Red Converter Grid
27	10KΩ	½		BTS-10K	Br.-Blk.-Or. Oscillator "
28	10KΩ	½		BTS-10K	Br.-Blk.-Or. " "
29	1000Ω	½		BTS-1000	Br.-Blk.-Red IF Screen Dropping
30	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
32	330KΩ	½		BTS-330K	Or.-Or.-Yl. AF Plate Load
33	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
34	47Ω	1		BW-1-47	Yl.-Vi.-Blk. " Cathode
35	910KΩ	½		BTS-820K	White-Br.-Yl. Phono Shunt
36	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Series Phono
37	180Ω	2		BW-2-180	Br.-Gray-Br. Filter
38	100Ω	1		BW-1-100	Br.-Blk.-Br. "
39	33Ω	1		BW-1-33	Or.-Or.-Blk. Surge Limiter
40	150Ω	1		BW-1-150	Br.-Grn.-Br. Pilot Light Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
41	18602	3.32	152	.582	851.514	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TEMPLE PART No.	JENSEN PART No.		
42	FIELD PM	VC IMP. 3.3Ω	780.008	ST-106 Mod. P5-W		
43	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

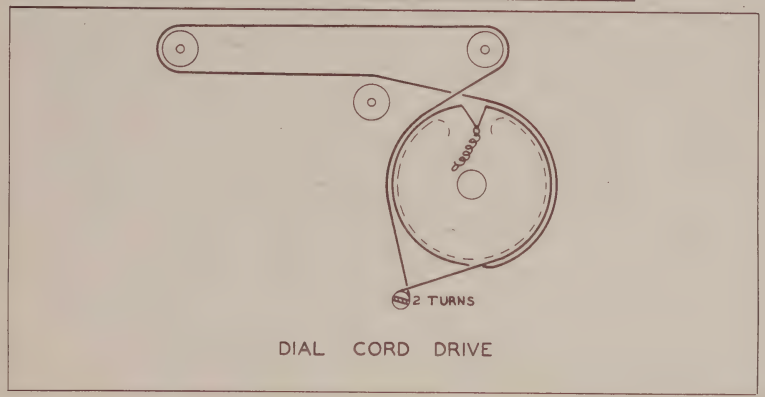
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TEMPLE PART No.	MEISSNER PART No.	
44	Loop Ant.	.2Ω	1.3Ω			
45	Osc. Coil		6.8Ω	LO-2	14-1040	
46	Input IF	15.5Ω	15.5Ω	TM2-1	16-6658	
47	Output IF	16Ω		TM2-3	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TEMPLE PART No.		
48	Bayonet	2.9	0.17	White			Type 291
49	Bayonet	2.9	0.17	White			Type 291

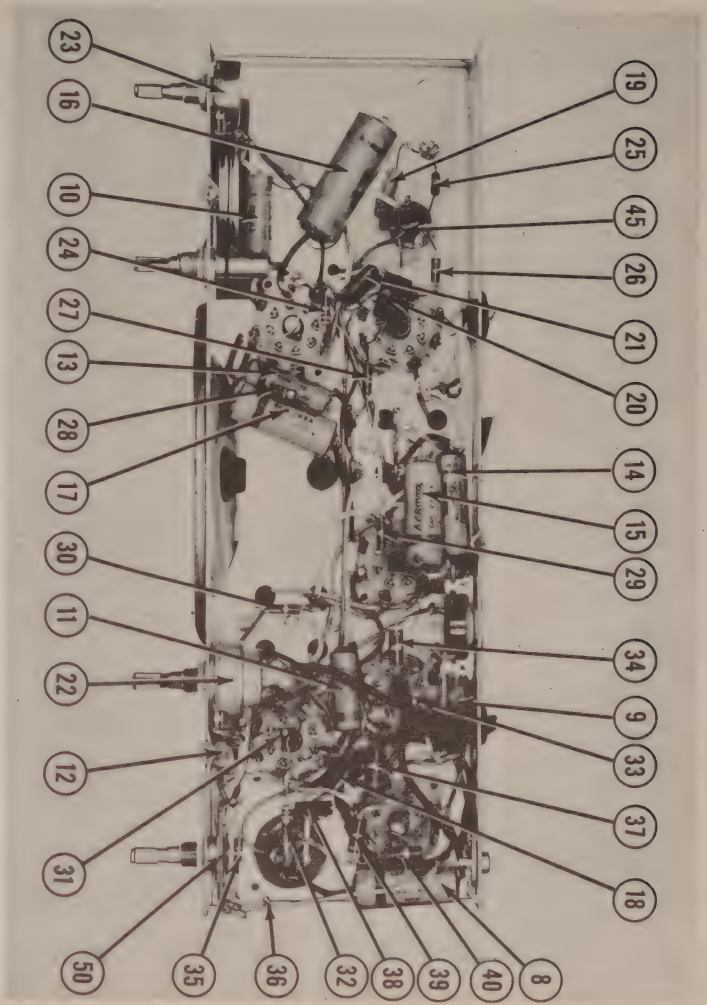
MISCELLANEOUS

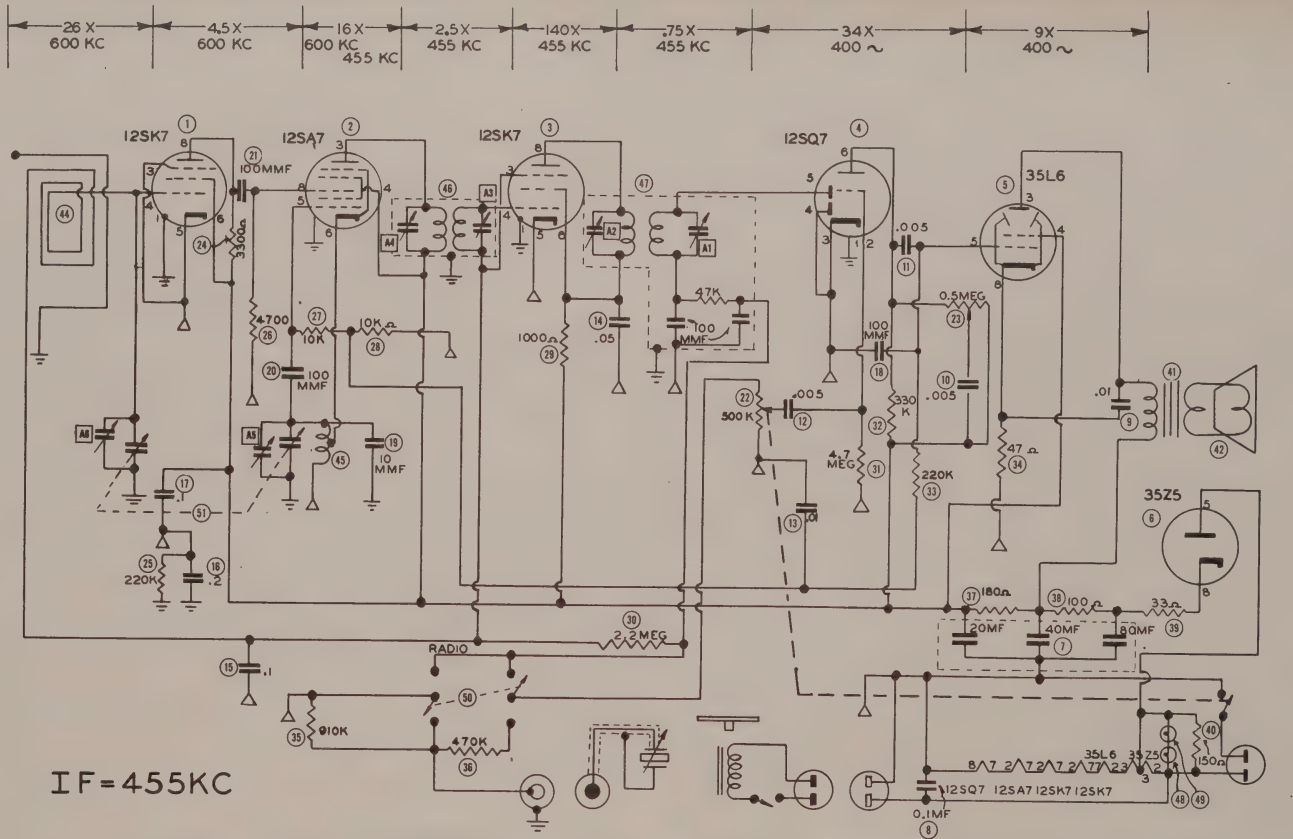
ITEM No.	PART NAME	TEMPLE PART No.	NOTES
50	Switch		Radio-Phono
51	2 Gang Var. Cap		(23-440 MMF, 20-186MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	27 V.AC	0V.	−3 V.DC	0V.	93 V.DC	39 V.AC	56 V.DC
2	12SA7GT	0V.	14 V.AC	93 V.DC	93 V.DC	−4.8 V.DC	0V.	27 V.AC	0V.
3	12SK7	0V.	39 V.AC	−4 V.DC	−4 V.DC	0V.	80 V.DC	55 V.AC	80 V.DC
4	12SQ7GT	0V.	−1 V.DC	0V.	0V.	−.6 V.DC	63 V.DC	14 V.AC	0V.
5	35L6GT	−3.2 V.DC	88 V.AC	88 V.DC	93 V.DC	−1.5 V.DC	0V.	55 V.AC	1.7 V.DC
6	35Z5GT	117 V.AC	117 V.AC	113 V.AC	115 V.AC	113 V.AC	106 V.DC	88 V.AC	117 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	235 KΩ	23Ω	0Ω	1.9 MEG.	0Ω	50 KΩ	34Ω	53 KΩ
2	12SA7GT	235 KΩ	12Ω	50 KΩ	50 KΩ	19 KΩ	.5Ω	23Ω	42 KΩ
3	12SK7	235 KΩ	34Ω	1.9 MEG.	1.9 MEG.	0Ω	50 KΩ	45Ω	50 KΩ
4	12SQ7GT	235 KΩ	4.5 MEG.	0Ω	0Ω	40 KΩ	380 KΩ	12Ω	0Ω
5	35L6GT	10 KΩ	74Ω	50 KΩ	50 KΩ	190 KΩ	INF.	45Ω	41Ω
6	35Z5GT	98Ω	98Ω	96Ω	97Ω	96Ω	50 KΩ	74Ω	50 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TRAV-LER
MODEL 5002 SERIES

TRAV-LER
MODEL 5002 SERIES

TRAV-LER MODEL I5002

TRADE NAME	Trav-Ler, Model 5002 Series (Chassis 109)
MANUFACTURER	Trav-Ler Radio & Tel. Corp. 571 W. Jackson, Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (SIX)	Types 12SK7 or 12BA6 RF Amp., 12SA7 Converter, 12SK7 or 12BA6 IF Amp. 12SQ7 or 12AT6 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT or 35W4 Rectifier
POWER SUPPLY	110-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC

RATING .220 Amp @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer parallel to horizontal line on dial plate at low frequency end. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and B-. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
200 MMFD	High side to ext. ant. lead. Low side to B-.	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	12SK7GT	12SK7GT	8N	
B	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12SA7GT	12SA7GT	8AD	
3A	IF Amp.	12SK7GT	12SK7GT	8N	
B	IF Amp.	12BA6	12BA6	7CC	
4A	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
B	Det.-AVC-AF	12AT6	12AT6	7BT	
5	Power Output	35L6GT	35L6GT	7AC	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	EC-3	DSB2x40-150	TA-240	PRSA150-40-40	BRL4215	2N514	Filter-Red
B	2Q	150							" -White
8	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
9	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
10	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	TP421	" "
12	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
13	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Network *
14	.1	400	PC-8	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Isolation
15	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
16	500	500	MC-5	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Audio Plate Bypass
17	100	500	MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Diode
18	56	500	MC-4	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
19	100	500	MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control. See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " " "
20A	1 Meg.	1	VC-3	MR53	D13-137	M-63-Z	Volume Control See Note 2
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

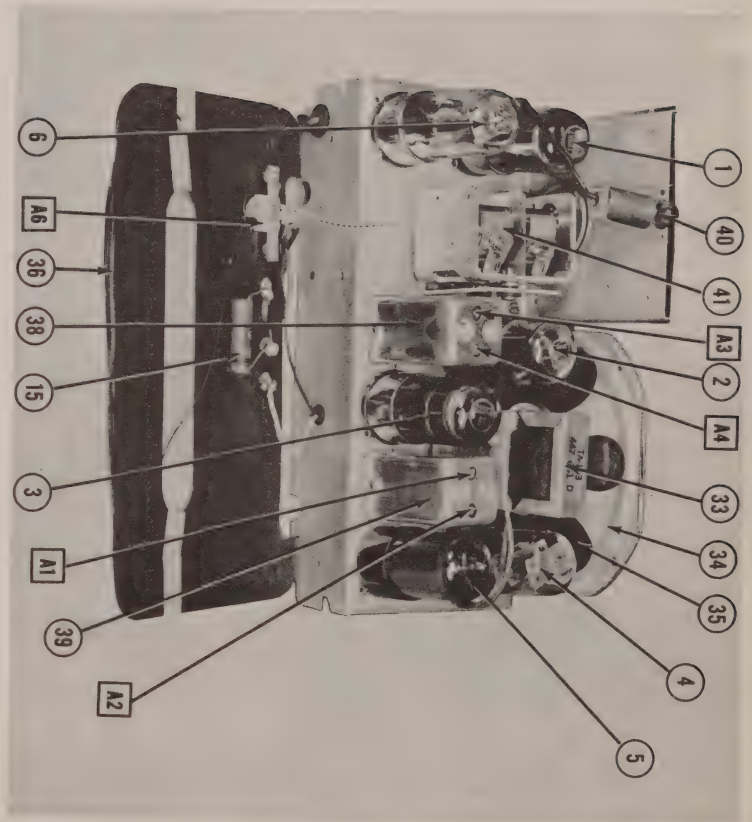
Note 1 Used in later production.
Note 2 " " early " .

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	IDENTIFICATION CODES
21	2200Ω	½		BTS-2200	Red-Red-Red RF Plate Load
22	2500Ω	1		BTA-2200	Red-Grn.-Red Filter
23	47KΩ	½	IR-10	BTS-47K	Yl.-Vi.-Or. Converter Grid
24	33KΩ	½	IR-16	BTS-33K	Or.-Or.-Or. Oscillator Grid
25	3.9 Meg.	½	IR-23	BTS-3.9 Meg.	Or.-White-Grn. AVC Network See Note 4
26	47KΩ	½	IR-10	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
27	2 Meg.	½	IR-18	BTS-2.2 Meg.	Red-Blk.-Grn. AF Grid
28	510KΩ	½		BTS-470K	Grn.-Br.-Yl. AF Plate Load
29	510KΩ	½		BTS-470K	Grn.-Br.-Yl. Output Grid
30	220Ω	½	IR-5	BW-½-220	Red-Red-Br. " Cathode
31	39Ω	½		BW-½-39	Or.-White-Blk. Rectifier Ballast
32	1 Meg.	½	IR-12	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network See Note 3

Note 3 Not used in all models.
Note 4 Models using Item #32 use a 2 meg. resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRAV-LER PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	2040Ω	2.8Ω	150Ω	.8Ω	Part of SPK-4	A-3678 #	TOM 45 #		# Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRAV-LER PART No.	JENSEN PART No.		
34	FIELD PM	VC IMP. 2.5Ω	SPK-4	ST-1051 Mod. P5-X	†	† Fabricate new mounting bracket.
35	CONE DIA. 4-9/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

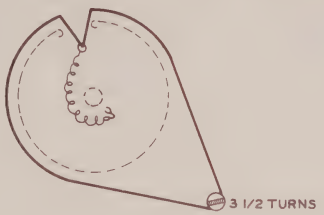
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	
36	Loop	.1Ω	1.5Ω	LL-1		
37	Osc. Coil		7.6	LO-2	14-1040	
38	Input IF	19Ω	19Ω	LI-1	16-6666	
39	Output IF	20.5Ω	19Ω	LI-2	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRAV-LER PART No.		
40	Bayonet	6-8	0.15	brown			Type 47

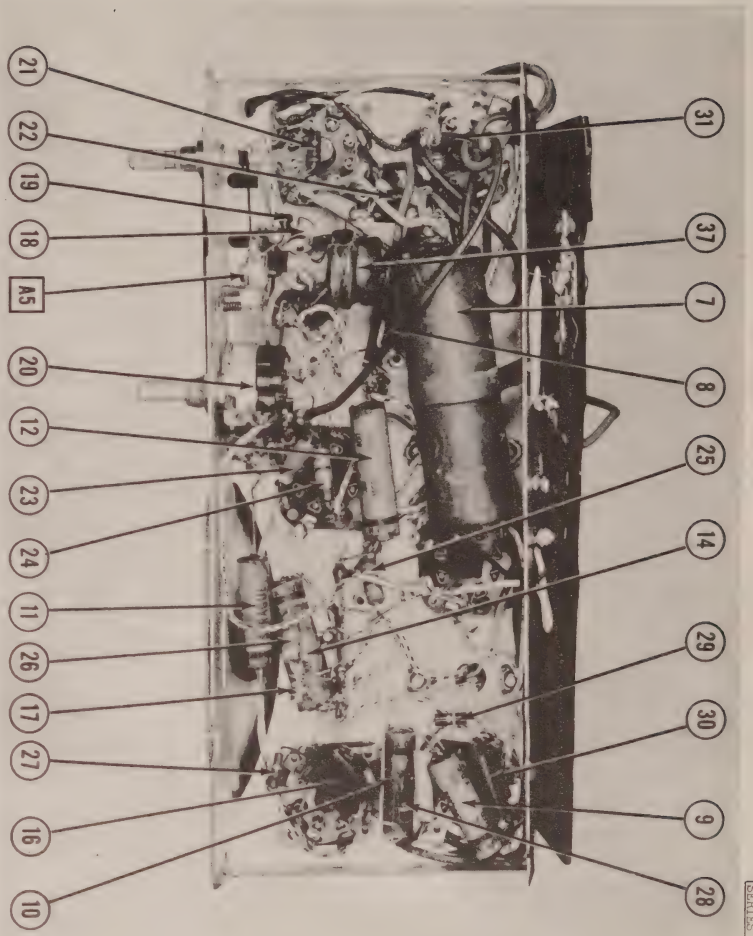
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
41	2 Gang Var. Cap.	SC-2	(12-176 MMF, 16-385 MMF)
A5	Trimmer	TC-6	Osc. Trimmer
A6	Trimmer	TC-7	Ant. Trimmer

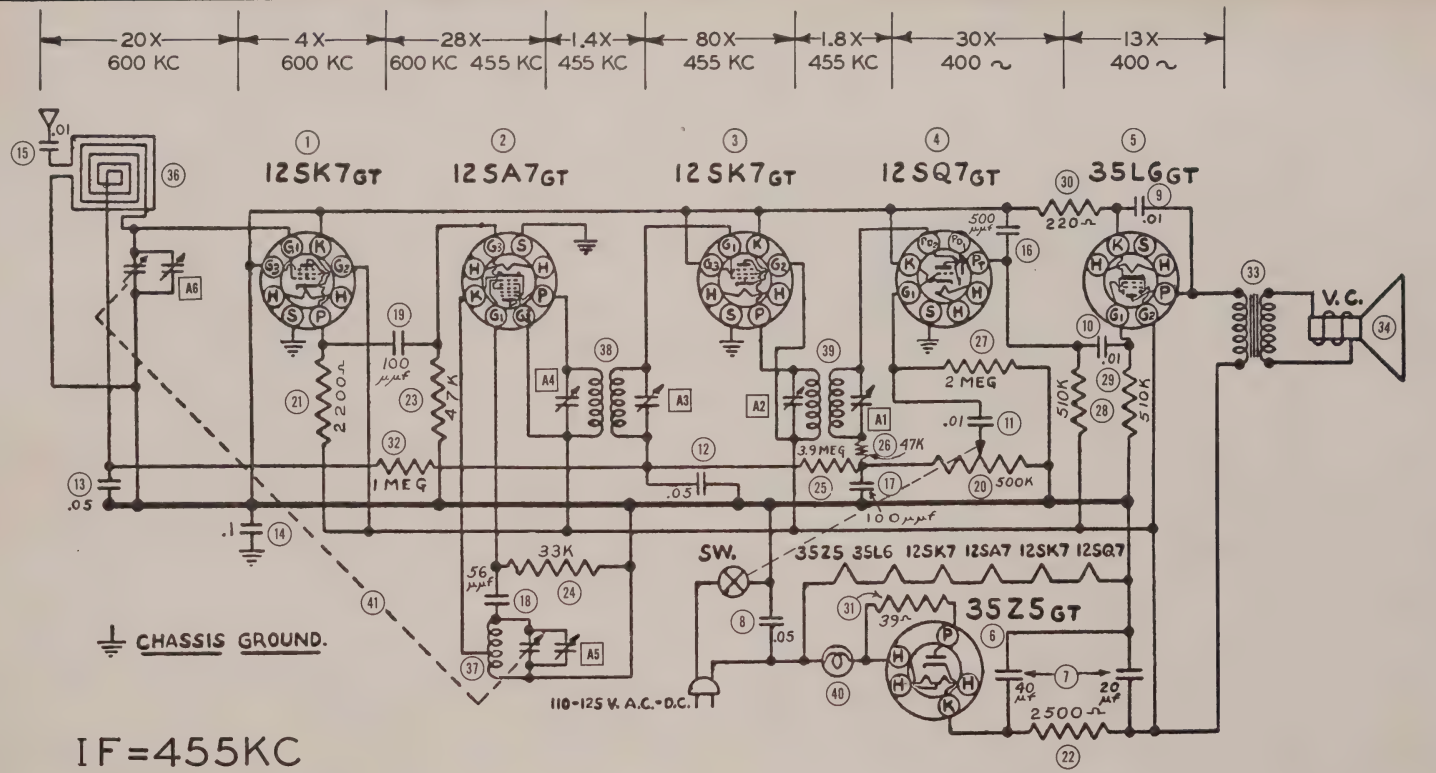


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRAV-LER 5002 SERIES



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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	36 V.AC	0V.	-9 V.DC	0V.	67 V.DC	25 V.AC	52 V.DC
2	12SA7GT	0V.	25 V.AC	67 V.DC	67 V.DC	-3.9 V.DC	0V.	13 V.AC	0V.
3	12SK7GT	0V.	51 V.AC	0V.	-9 V.DC	0V.	67 V.DC	36 V.AC	67 V.DC
4	12SQ7GT	0V.	-1 V.DC	0V.	-.4 V.DC	-.4 V.DC	33 V.DC	13 V.AC	0V.
5	35L6GT	0V.	87 V.AC	121 V.DC	67 V.DC	0V.	0V.	51 V.AC	4.1 V.DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	0V.	112 V.AC	0V.	87 V.AC	124 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	INF.	33Ω	0Ω	4 MEG.	0Ω	65 KΩ	23Ω	66 KΩ
2	12SA7GT	0Ω	23Ω	55 KΩ	55 KΩ	30 KΩ	.5Ω	12Ω	37 KΩ
3	12SK7GT	INF.	43Ω	INF.	4 MEG.	0Ω	55 KΩ	33Ω	55 KΩ
4	12SQ7GT	0Ω	1.7 MEG.	0Ω	470 KΩ	INF.	580 KΩ	12Ω	0Ω
5	35L6GT	INF.	71Ω	55 KΩ	55 KΩ	480 KΩ	0Ω	43Ω	180Ω
6	35Z5GT	INF.	95Ω	93Ω	INF.	130Ω	INF.	71Ω	55 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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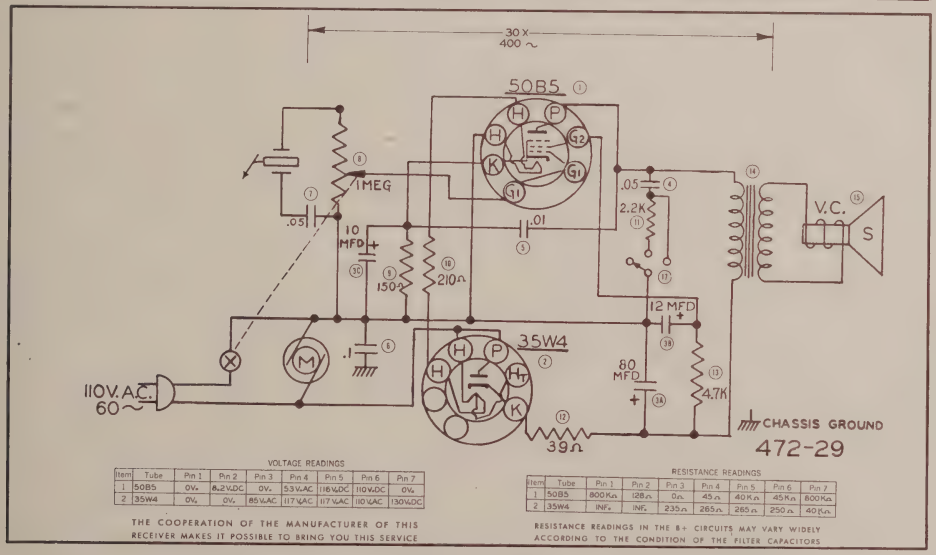
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRAV-LER MODEL 7003

TRADE NAME	Trav-ler, Model 7003 (Ch. 501)
MANUFACTURER	Trav-ler Radio & Tel. Corp., 571 W. Jackson, Chicago, Ill.
TYPE SET	AC Operated Phonograph with 2-Tube Amplifier & Speaker
TUBES (TWO)	Types, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-125 Volts AC RATING .245 Amp. @ 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	50B5	0V.	8.2V.DC	0V.	53V.AC	116V.DC	110V.DC	0V.
2	35W4	0V.	0V.	85V.AC	117V.AC	117V.AC	110V.AC	130V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	50B5	800Kn	128n	0n	45n	40Kn	45Kn	800Kn
2	35W4	INF.	INF.	235n	265n	265n	250n	40Kn

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Power Output	50B5	50B5	7BZ	
2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
3A	80	150	EC-5	DSB-8040-150	EL-432		E2S32150†		Filter - Red
B	12	150							" - White
C	10	25		M-20-25					Cath. Bypass - Blue
4	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	TP426	Tone Compensation
5	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
6	.1	400	PC-3	S-4-1	TC-1	484-.1	DT4P1	TP428	Line Isolation
7	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	TP426	Phono Isolation

†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
8A	500KΩ	1	VC-6	MK401	D13-133	AM-60-Z	Volume Control - See Note 1
B	Shaft			Not Req.	E	KSS-3	Attach to 8A per instructions
C	Switch			M26	41	SW-A	" " " " "
8A	1 Meg.	1		MK402	D13-137	AM-63-Z	Volume Control - See Note 2
B	Shaft			Not Req.	E	KSS-3	Attach to 8A per instructions
C	Switch			M26	41	SW-A	" " " " "

Note 1 - Used in early production.
Note 2 - Used in later production.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	IDENTIFICATION CODES
9	150Ω	½	IR-14	BW-½-150	Br.-Grn.-Br. Output Cathode
10	210Ω	5	WR-1	ABA-250	Line Dropping-See Note 3
11	2200Ω	½	IR-7	BTS-2200	Red-Red-Red Tone Compensation
12	39Ω	½	IR-17	BW-½-39	Or.-White-Blk. Surge Limiter
13	4700Ω	½	IR-18	BTS-4700	Yl.-Vi.-Red Filter

Note 3 - On IRC replacement set slider at 210Ω from one end.

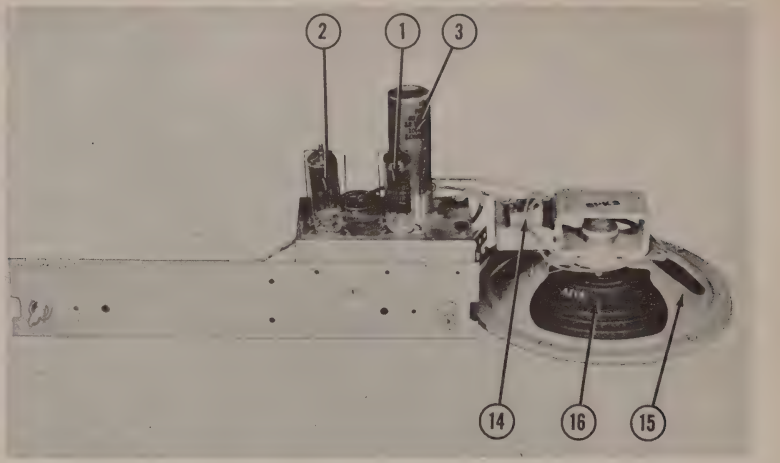
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRAV-LER PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
14A	2000Ω	3.2Ω	220Ω	.4Ω	Part of SPK-3	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original brackets.
B					Part of SPK-2				Used with alternate speaker

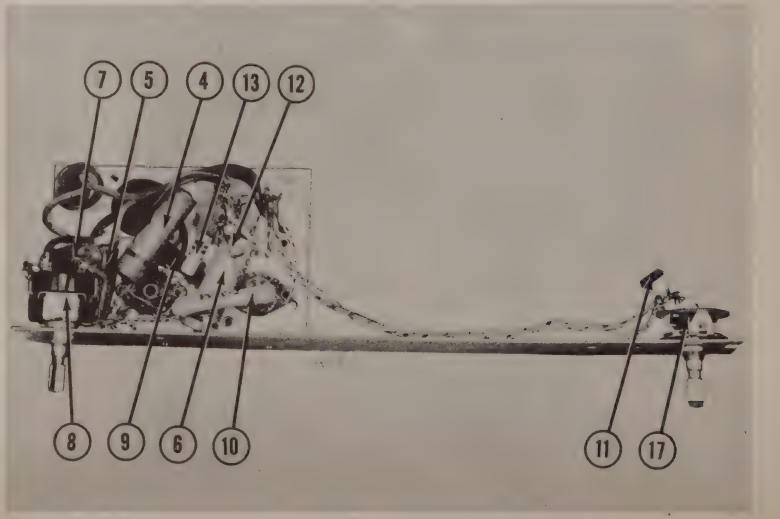
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TRAV-LER PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-108		
15A	PM	3.2Ω	SPK-3	Mod. P8-X		
B			SPK-2			Alternate Speaker
	CONE DIA.	VC DIA.				
16	6"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



TRUETONE
MODEL D1644

TRUETONE
MODEL D1644

TRUETONE MODEL D1644

TRADE NAME	Truetone, Model D1644
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Combination Auto. Phono. - Superheterodyne Receiver, Self Contained Loop Antenna
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volts AC
TUNING RANGE—BROADCAST	535-1725KC RATING .47 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the first mark from left end of dial plate. Place coupling link on loop in correct position for external antenna operation while aligning receiver. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ant. terminal on loop. Low side to gnd. terminal.	1725KC	"	"	A5	" " " "
250 MMF.	"	1500KC	Tune for maximum output.	"	A6,A7.	Adjust for maximum output in order given.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6K6GT	6K6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	16	450	A16-274	M-16-450	UT-16	PRS450-16	BR1645	ST597	Filter
8	16	450	A16-279	M-16-450	UT-16	PRS450-16	BR1645	ST597	"
9	.005	600	A16-153	S-6-005	TC-25	684-005	DT6D5	TP408	6K6 Plate Bypass
10	.01	400	A16-156	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.01	400	A16-156	S-4-01	TC-11	484-01	DT4S1	TP421	Tone Compensation
12	.05	400	A16-158	S-4-05	TC-15	484-05	DT4S5	TP426	Audio Plate Decoup.
13	.01	400	A16-156	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
14	.05	200	A16-152	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
15	.05	400	A16-158	S-4-05	TC-15	484-05	DT4S5	TP426	IF Screen Bypass
16	.05	200	A16-152	S-4-05	TC-15	484-05	DT4S5	TP426	IF Cath. Bypass
17	.05	400	A16-158	S-4-05	TC-15	484-05	DT4S5	TP426	RF Screen Bypass
18	.05	200	A16-152	S-4-05	TC-15	484-05	DT4S5	TP426	RF Cath. Bypass
19	.05	400	A16-158	S-4-05	TC-15	484-05	DT4S5	TP426	Conv. Screen Bypass
20	.05	200	A16-152	S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
21	250	500	A15-176	M0.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
22	50	500	A15-175	M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
23	50	500	A15-175	M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	RF Trans. Fixed Tuned
24	200	500		M0.5-32	1FM-32	1468-0002	5W5T2	MC237	Ant. Coupling
57	.005	600	A16-153	S-6-005	TC-25	684-005	DT6D5	TP408	Output Plate Bypass *

*Not used in all models.

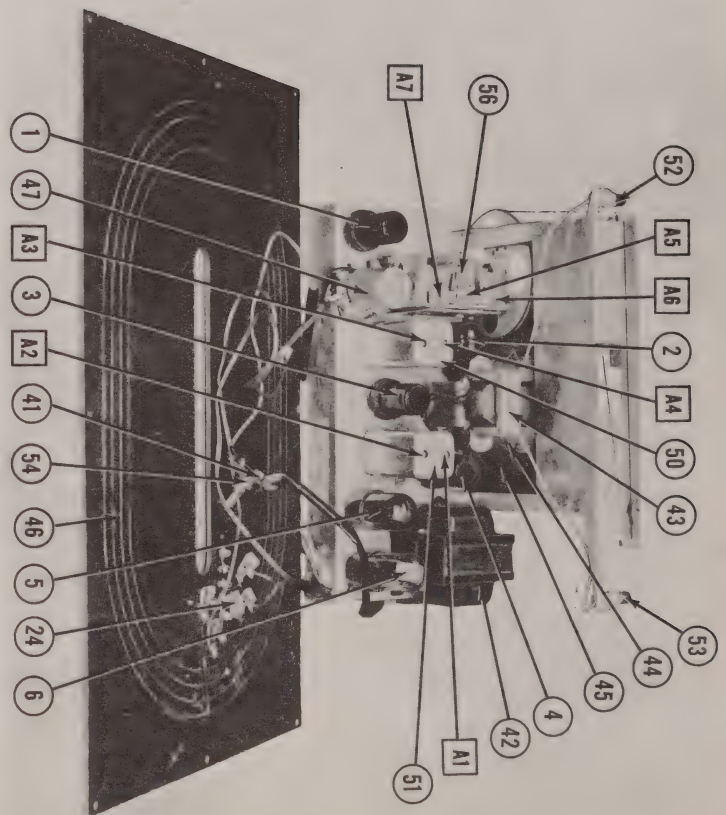
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	A24-169	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
26A	3 Meg.	1	A26-123	UM165	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
27	220KΩ	1/3	A60-667	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	1	A60-692	BTA-27K	Red-Vi.-Or. Mixer Screen Dropping
30	150Ω	1/3	A60-686	BW-½-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	1/3	A60-659	BTS-22K	Red-Red-Or. Osc. Grid
32	1000Ω	1/3	A60-675	BTS-1000	Br.-Blk.-Red IF Cathode
33	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	1/3	A60-663	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	1/3	A60-667	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	1/3	A60-687	BTS-220K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	1/2	A60-662	BTS-470K	Grn.-Blk.-Yl. Output Grid
38	50Ω	1	A60-701	BTA-470	Grn.-Blk.-Br. Output Cathode
39	82KΩ	1	A60-700	BTA-82K	Gray-Red-Or. Bleeder
40	1000Ω	2	A-60-699	BT-2-1000	Br.-Blk.-Red Filter
41	200KΩ	1/2	A60-667	BTS-220K	Red-Blk.-Yl. Series Phono.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
42	117V AC @ .47A	590V CT @ .069A	4.9V AC @ 1.8A	6.2V AC @ 1.85A	C80-223	P-6119	T-13R20	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
43	6200Ω	3.5Ω	480Ω	.64Ω	A80-222	A-3823	T22S49†		†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
44	FIELD	VC IMP.	B79-341	ST-112		‡Alternate speaker assembly
	PM	3.5Ω	B79-342‡	Mod. P6-T		
45	CONE DIA.	VC DIA.				
	6-1/16"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
46	Loop Ant.	0Ω	0Ω	S84-56		
47	Ant. Coil	57Ω	4Ω	B10-461		
48	RF Coil	68Ω	2.5Ω	B10-452	14-1027	
49	Osc. Coil		5Ω	A10-446	14-1040	
50	Input IF	17.5Ω	26Ω	B10-412	16-6653	
51	Output IF	18Ω		B10-444	16-6660*	

*From low end of secondary winding add a 250 MMFD cap. to ground, 1 Meg. resistor to second diode, a 50KΩ resistor to high end of volume control.

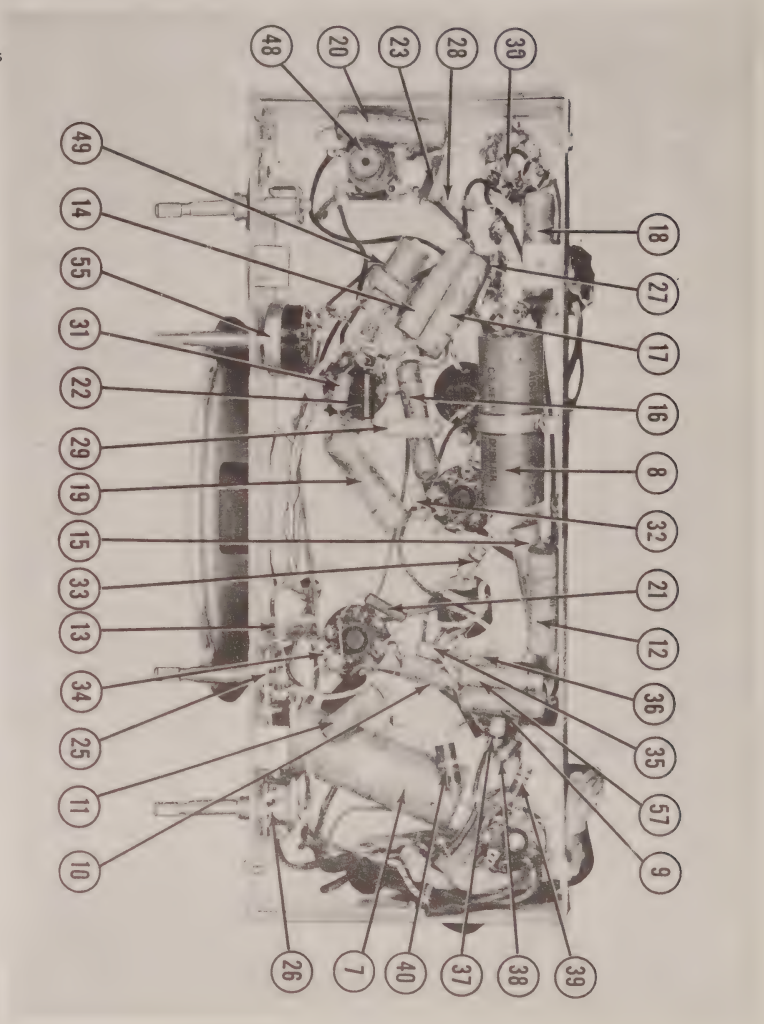
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
52	Bayonet	6-8	0.25	Blue			Type 47
53	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
54	Switch	A69-172	Radio-Phono
55	"	A69-169	On-off
56	Tuning Cap.	B19-186	3 Gang Variable Cap.
	Dial Scale	C67-494	
	Knob	A85-163	
	"	A85-133	(Phono-Radio)
	Dial Point-r	A85-61	

CHASSIS—BOTTOM VIEW



NOTE: VOLTAGE & RESISTANCE READINGS TAKEN IN RADIO POSITION

VOLTAGE READINGS

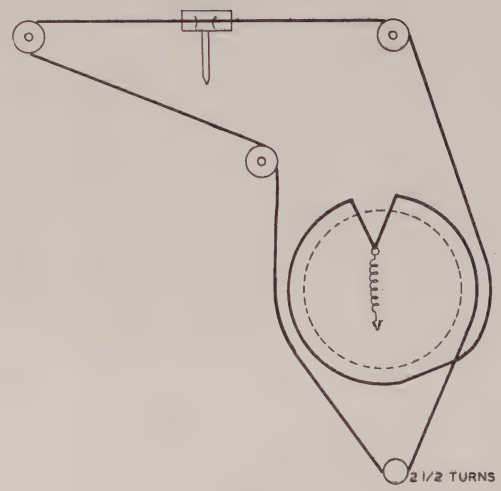
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	1.4VDC	-.07VDC	1.4VDC	.89VDC	6.2VAC	247VDC
2	6SA7GT	0V.	0V.	247VDC	77VDC	-4.1VDC	0V.	6.2VAC	-.35VDC
3	6SK7GT	0V.	0V.	6.6VDC	-.35VDC	6.6VDC	128VDC	6.2VAC	247VDC
4	6SQ7GT	0V.	-.8V. DC	0V.	-.35VDC	-15V. DC	103V. DC	6.2VAC.	0V.
5	6K6GT	0V.	0V.	285VDC	247VDC	0V.	175VDC	6.2VAC	19VDC
6	5Y3GT	298VDC	298VDC	0V.	290VAC	0V.	290VAC	0V.	298VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	150Ω	1.6MEG.	150Ω	160KΩ	1Ω	56KΩ
2	6SA7GT	0Ω	0Ω	56KΩ	80KΩ	21.5KΩ	.5Ω	1Ω	1.4MEG.
3	6SK7GT	0Ω	0Ω	900Ω	1.4MEG.	900Ω	160KΩ	1Ω	56KΩ
4	6SQ7GT	0Ω	11MEG.	0Ω	1.4MEG.	520KΩ	500KΩ	1Ω	0Ω
5	6K6GT	0Ω	0Ω	56KΩ	56KΩ	500KΩ	250KΩ	1Ω	490Ω
6	5Y3GT	56KΩ	56KΩ	INF.	210Ω	INF.	220Ω	INF.	56KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

DISASSEMBLY INSTRUCTIONS

1 - Remove the on-off, volume control, tone control, and tuning control push-on type knobs.

2 - Remove eight wood screws holding antenna loop to rear of cabinet..

3 - Disconnect four leads from loop antenna and remove loop.

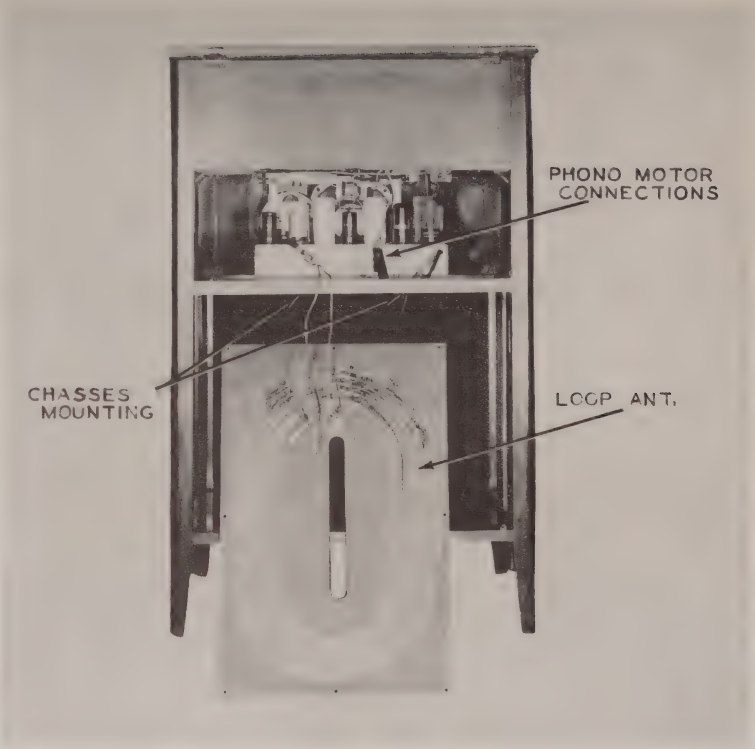
4 - Remove phono-radio switch push-on type knob. Remove nut holding switch to mounting board and remove switch.

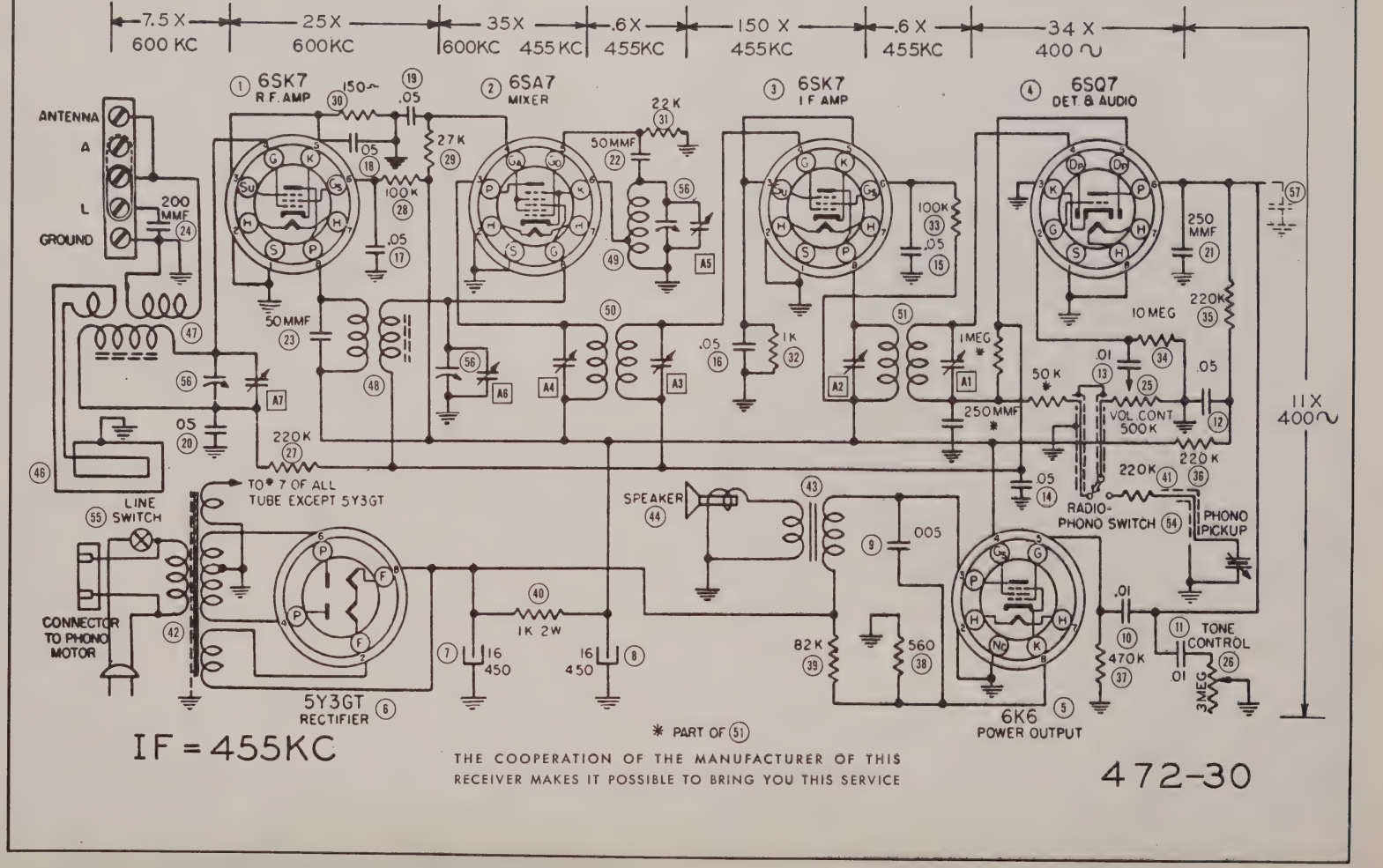
5 - Disconnect phono-pickup leads.

6 - Disconnect phono-motor leads.

7 - Remove the four wood screws and washers holding chassis board to cabinet. Remove chassis board.

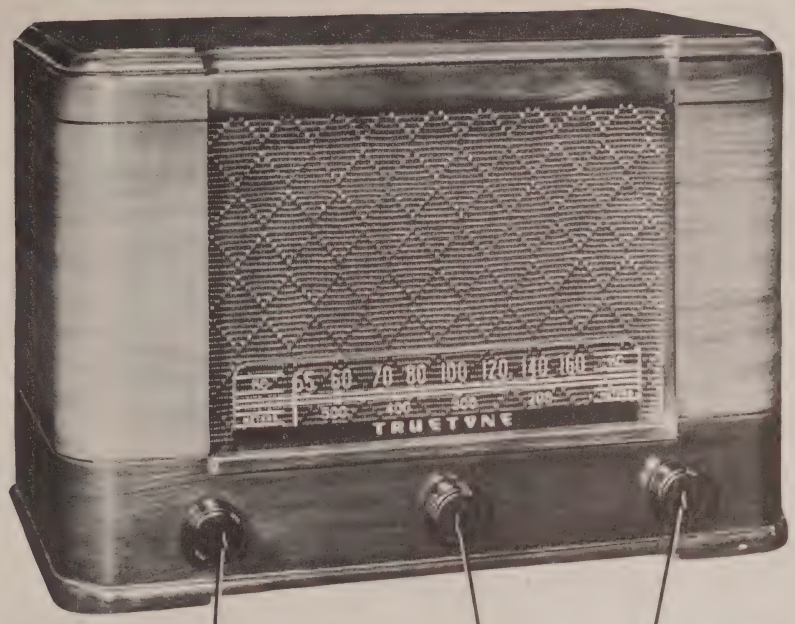
8 - Remove four hex screws and washers holding chassis to chassis board. Remove chassis.





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

TRUETONE
MODEL D 2634



TRUETONE
MODEL D 2634

TRUETONE MODEL D-2634

TRADE NAME	Truetone Model D-2634
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City Mo.
TYPE SET	AC Operated Superheterodyne Receiver - Self contained Loop Antenna
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp.,6SQ7 Det-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .500 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 - 1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Keep chassis and loop in the same relative position as they are in when mounted in the cabinet. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 Mfd	High side to pin #8 (grid) of 6SA7. Low side to chassis.	455KC	High freq. end (Tuning control full clockwise)	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output.
100 MMF	High side to ant. clip. Low side to chassis.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune for max. output	"	A6, A7	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	15	450	25688	DY-312	EL-353	AF44J	UP6BJ38	FP339	■ Filter
B	15	450							▲ "
C	20	25				PRS25-25	BR202A		Cathode Bypass
8	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	Line Bypass
9	.005	600		S-6-005	TC-25	684-005	DT6D5	TP408	" "
10	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	Audio Coupling
11	.005	400		S-6-005	TC-25	484-005	DT6D5	TP408	Tone Compensation
12	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	" "
13	.005	400		S-6-005	TC-25	484-005	DT6D5	TP408	Audio Coupling
14	.05	600		S-6-05	TC-15	684-05	DT6S5	TP415	" "
15	.1	400		S-4-1	TC-1	484-.1	DT4P1	TP428	Screen Bypass
16	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	IF Cathode Bypass
17	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
18	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
19	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
20	.01	400		S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
21	200	500		MO.5-32	1FM-32	1468-0002	5W5T2	MC237	Audio Plate Bypass
22	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor

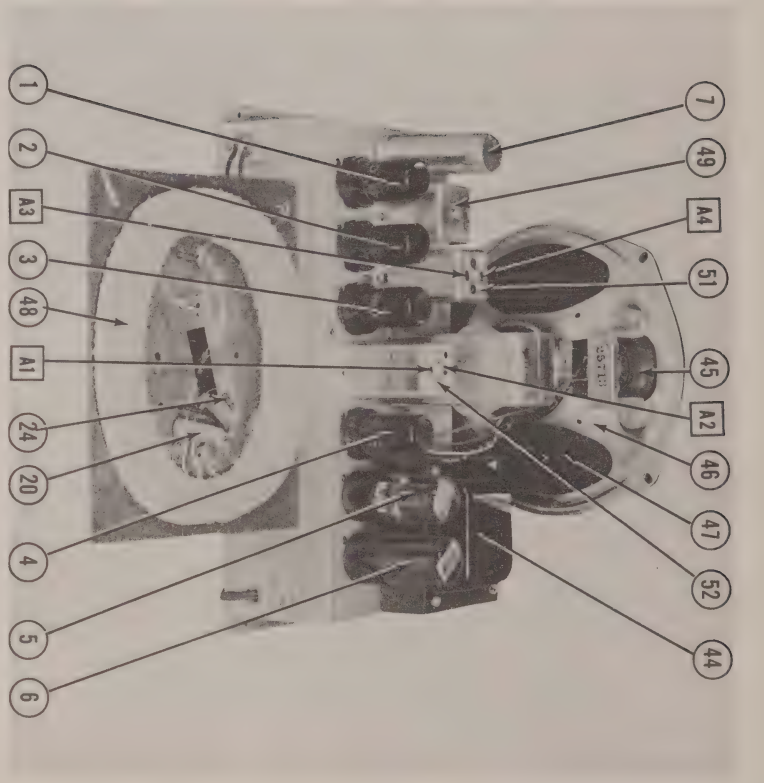
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	2.2Meg	1	25690	TM254	D13-139X	T-115	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 23A per Instr.
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES	
24	1000Ω	½		BTS-1000	Br. - Blk. - Red	Antenna Loading
25	100KΩ	½		BTS-100K	Br. - Blk. - Yl.	AVC Network
26	470Ω	½		BTS-470	Yl. - Vi. - Br.	RF Cathode
27	100KΩ	½		BTS-100K	Br. - Blk. - Yl.	AVC Network
28	22KΩ	½		BTS-22K	Red - Red - Or.	Oscillator Grid
29	470Ω	½		BW-1-470	Yl. - Vi. - Br.	IF Cathode
30	22KΩ	2		BT-2-22K	Red - Red - Or.	Screen Dropping
31	1 Meg	½		BTS-1 Meg	Br. - Blk. - Grn.	AVC Network
32	470KΩ	½		BTS-470K	Yl. - Vi. - Yl.	Diode Load
33	15 Meg	½		BTS-15 Meg	Br. - Grn. - Blue	1st AF Grid
34	220KΩ	½		BTS-220K	Red - Red - Yl.	1st AF Plate Load
35	1 Meg	½		BTS-1 Meg	Br. - Blk. - Grn.	Feedback
36	220KΩ	½		BTS-220K	Red - Red - Yl.	Output Grid
37	330Ω	2		BW-2-330	Or. - Or. - Br.	Output Cathode
38	2.2 Meg	½		BTS-2.2Meg	Red - Red - Grn.	Tone Compensation
39	22KΩ	½		BTS-22K	Red - Red - Or.	" "
40	33KΩ	½		BTS-33K	Or. - Or. - Or.	" "
41	470KΩ	½		BTS-470K	Yl. - Vi. - Yl.	Series Phono
42	1 Meg	½		BTS-1 Meg	Br. - Blk. - Grn.	Phono Shunt
43	3.3Ω	½		BW-½-3.3	Or. - Or. - Gold	Series Pilot Light

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
44	117VAC @ .5 A	620VCT @ .062A	5.1VAC @ 1.8A	6.4VAC @ 1.9A	25723	P-61201*	T22R02*	*Drill new mounting holes. † Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
45	3300Ω	3.2Ω	240Ω	.25Ω	25713	A-3823	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
46	Field Res. 800Ω	V.C.Imp. 3.2Ω	25712	ST-435† Mod.F8-RS		†Shunt Field Coil With 4000Ω 2Watt Resistor.
47	Cone Dia. 7 3/8"	V.C.Dia. 3/4"	NOT READILY REPLACEABLE UNIT – USE COMPLETE SPEAKER UNIT			

R F COILS

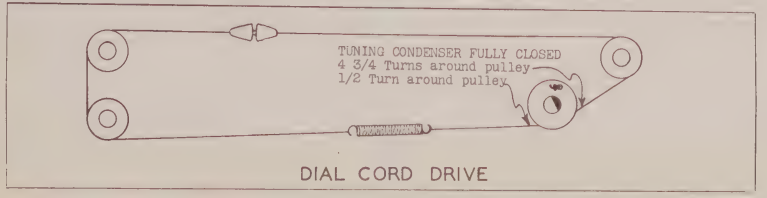
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	.7Ω	25662		
49	RF Coil	72Ω	6Ω	25597	14-7558	
50	Osc. Coil		6Ω	25724	14-1040	
51	Input IF	28.8Ω	28.8Ω	25715	16-6658	
52	Output IF	32Ω		25714	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
53	Bayonet	6-8	0.15	Brown	25576		Type 47
54	Bayonet	6-8	0.15	Brown	25576		Type 47

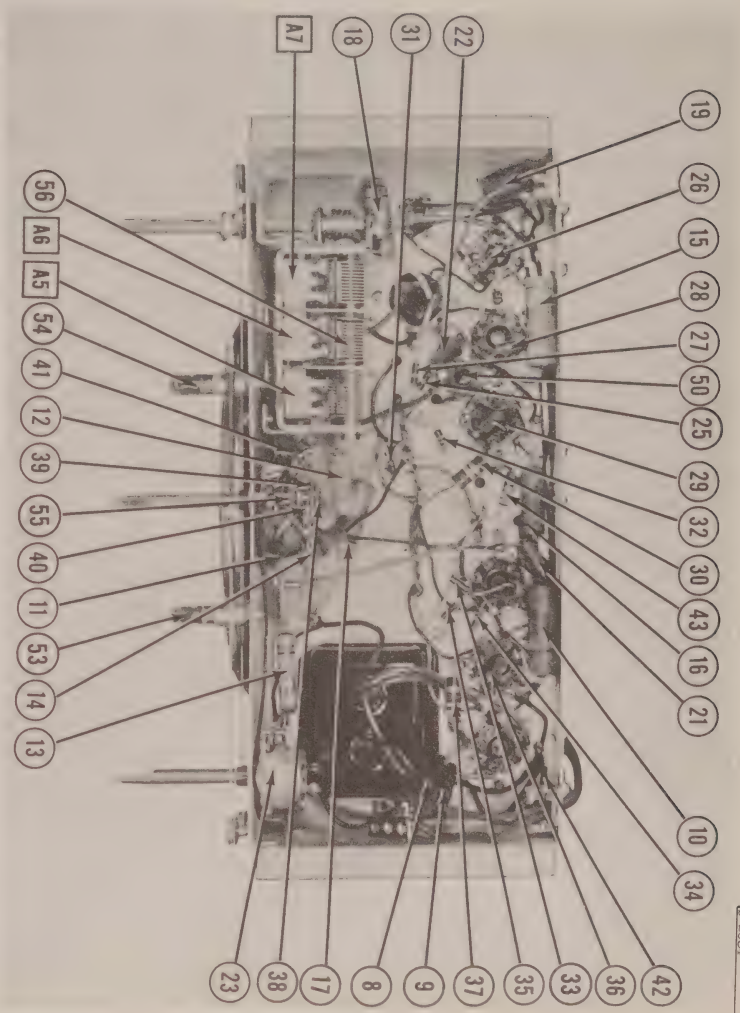
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
55	Radio-Tone Sw.	25582	Trimmers Included
56	3-Gang Var. Cap.	25582	
	Dial Pointer	25578	

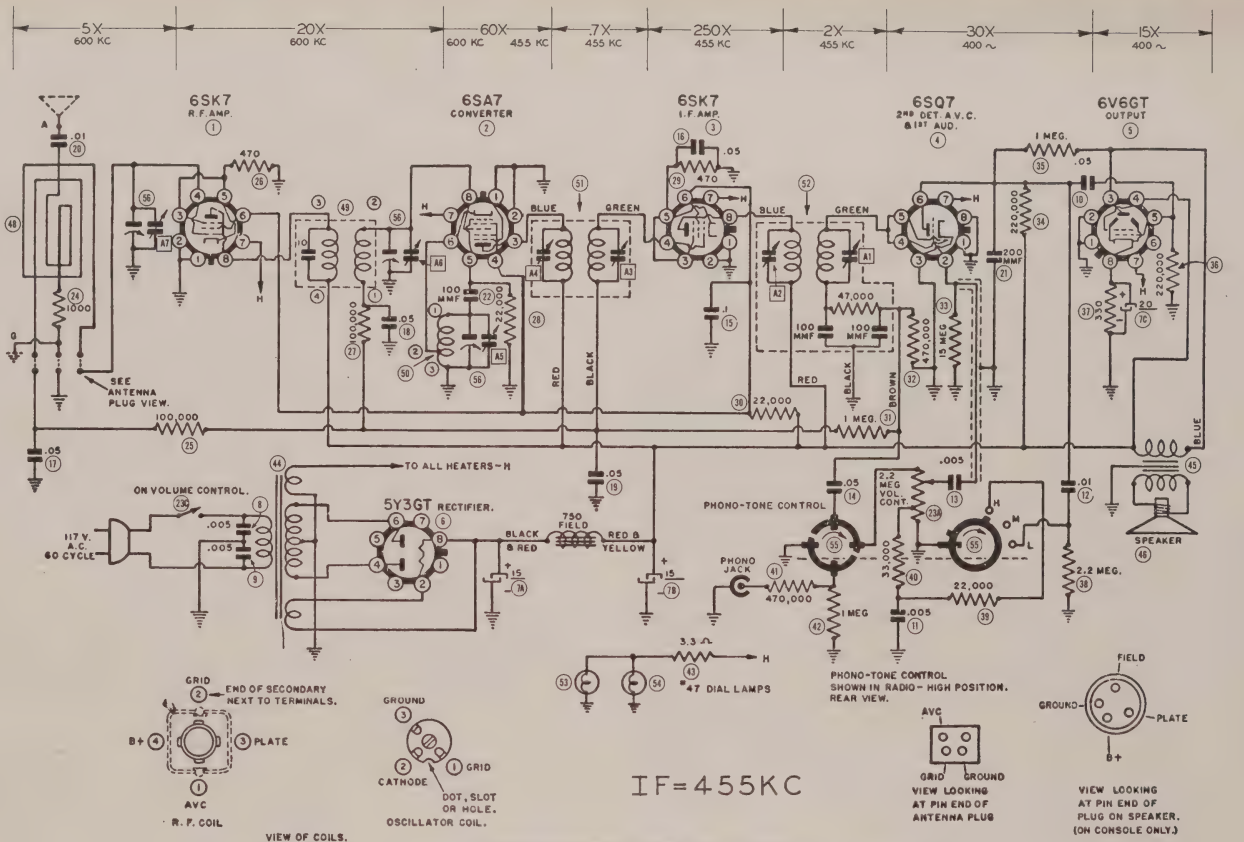


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D-2624



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS *

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	3.2V.DC	-2V.DC	3.2V.DC	75V.DC	6.4V.AC	275V.DC
2	6SA7	0V.	0V.	275V.DC	75V.DC	-3.2V.DC	0V.	6.4V.AC	-3V.DC
3	6SK7	0V.	0V.	2.8V.DC	-3V.DC	2.8V.DC	75V.DC	6.4V.AC	275V.DC
4	6SQ7	0V.	-5V.DC	0V.	-45V.DC	-45V.DC	125V.DC	6.4V.AC	0V.
5	6V6GT	0V.	0V.	265V.DC	275V.DC	0V.	0V.	6.4V.AC	15V.DC
6	5Y3GT	0V.	330V.DC	0V.	310V.AC	0V.	310V.AC	0V.	330V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	400Ω	.5 MEG.	400Ω	162KΩ	Ja	140KΩ
2	6SA7	0Ω	0Ω	140KΩ	162KΩ	18KΩ	.5Ω	Ja	.5 MEG.
3	6SK7	0Ω	0Ω	400Ω	.4 MEG.	400Ω	162KΩ	Ja	140KΩ
4	6SQ7	0Ω	.5 MEG.	0Ω	460KΩ	460KΩ	360KΩ	Ja	0Ω
5	6V6GT	0Ω	0Ω	140KΩ	140KΩ	240KΩ	INF.	Ja	300Ω
6	5Y3GT	INF.	140KΩ	INF.	145Ω	INF.	155Ω	INF.	140KΩ

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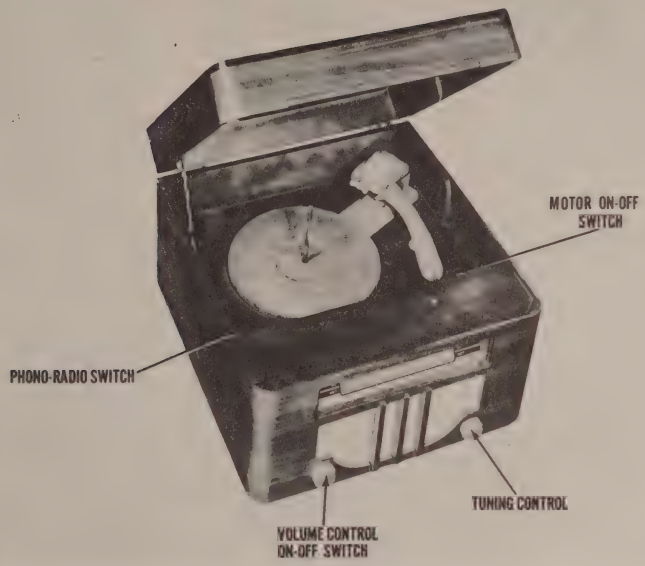
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-31

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRUETONE
MODEL D2642

TRUETONE
MODEL D2642

TRUETONE MODEL D2642

TRADE NAME	Truetone, Model D2642
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Automatic Phono - Superheterodyne Receiver - Self Contained Loop Ant.
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1630KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. To adjust pointer, set variable fully closed and set pointer to last hole in dial backplate. See dial cord sketch for details. Volume control should be at maximum, output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250MMFD	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output!
250MMFD	"	1630KC	"	"	A5	" " " "
	Loop	1400KC	Tune for maximum output.	"	A6	Place set in cabinet and radiate signal with few turns of wire. Adjust for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Disconnect the phono-on-off switch and the phono-radio switch plug from the end of chassis.
3. Unsolder ground lead from lug on phono-motor.
4. Remove two wood screws and spacers holding loop antenna to cabinet. Remove loop from cabinet.
5. Remove four Phillips head screws holding chassis board to cabinet. Remove chassis and chassis board from cabinet.
6. Remove four hex head screws holding chassis to chassis board. Remove chassis.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifer	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	67A8	DSB-403020-150	TA-330	PRSA150-40-40	EZ42215	TN129	Filter - Red
B	30	150							" - Yellow
C	20	150			UT-201	PRS150-20			" - Blue
6A	50	150	67A3	M-5030-150	TA-530	PRSA150-40-40	BRD3515	2N520	Filter †
B	30	150							"
7	.05	400	64B1-22	S-4-05	TC-15	484-05	DT4S5	TP426	Line Filter
8	.2	400	64A2-1	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
9	.02	400	64B1-24	S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
10	.01	400	64B1-25	S-4-01	TC-11	484-01	DT4S1	TP421	Audio Coupling
11	.01	400	64B1-25	S-4-01	TC-11	484-01	DT4S1	TP421	" "
12	.01	400	64B1-25	S-4-01	TC-11	484-01	DT4S1	TP421	Tone Compensation
13	.01	400	64B1-25	S-4-01	TC-11	484-01	DT4S1	TP421	" "
14	.2	400	64A2-1	S-4-2	TC-2	484-.2	DT4P2	TP429	Phono. Isolation
15	.02	400	64B1-24	S-4-02	TC-12	484-02	DT4S2	TP423	Fixed Padder
16	.1	200	64B1-30	S-4-1	TC-1	484-.1	DT4P1	TP428	AVC Filter
17	.005	600	64B1-12	S-6-005	TC-25	684-005	DT6D5	TP408	Ant. Coupling
18	500	500	65B7-27	M0.5-35	1FM-35	1468-00005	5W575	MC245	Audio Plate Bypass
19	250	500	65B7-22	M0.5-325	1FM-325	1468-00025	5W5725	MC240	IF Bypass Diode
20	50	500	65B7-11	M0.5-45	1FM-45	1468-00005	5W525	MC225	Osc. Grid Capacitor
21	20	500	65B5-5	M5-42	MS-42	1466-000025	5W522	MC220	Fixed Trimmer

† Used in earlier models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	75B3-2	DTM383	D1B-133XX	AT-92	Volume Control
B	Shaft		Not Req.	SS25	5	KSS-3	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

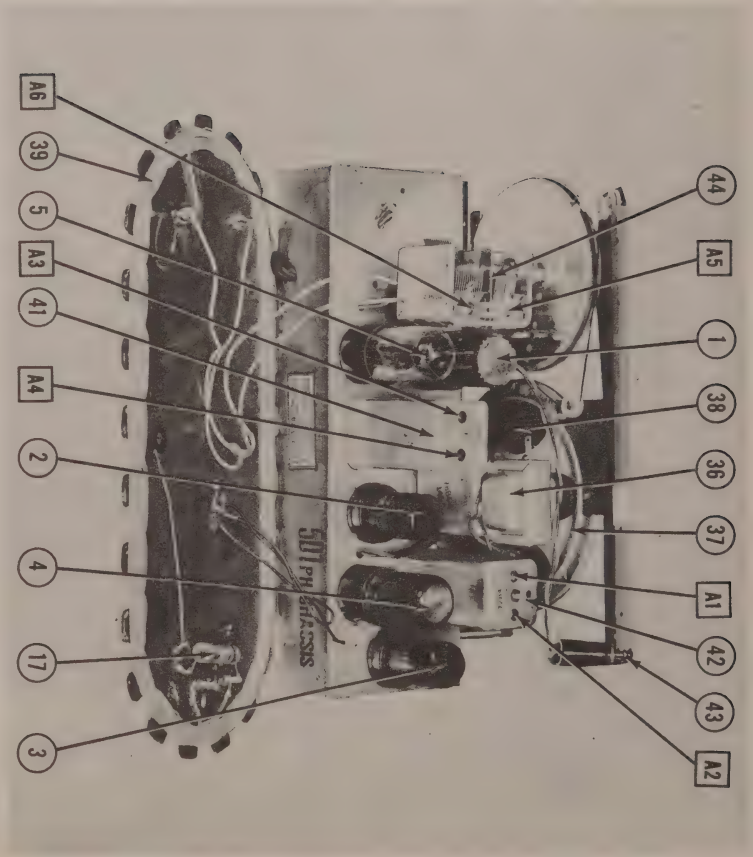
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
23	22KΩ	½	60B8-223	BTS-22K	Red-Red-Or. Oscillator Grid
24	1 Meg.	½	60B8-105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	47KΩ	½	60B8-473	BTS-47K	Yl.-Vi.-Or. Tone Compensation
26	27KΩ	½	60B8-273	BTS-27K	Red-Vi.-Or. Tone Compensation
27	10 Meg.	½	60B8-106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
28	220KΩ	½	60B8-224	BTS-220K	Red-Red-Yl. 1st AF Plate Load
29	470KΩ	½	60B8-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½	60B8-151	BW-½-150	Br.-Grn.-Br. Output Cathode
31	150Ω	½	60B8-154	BTS-150K	Br.-Grn.-Yl. Line Isolation
32	150Ω	1	60B28-1	BW-1-150	Br.-Grn.-Br. Filter - See Note 1
33	1000Ω	1	60B28-2	BT-1-1000	Br.-Blk.-Red Filter - See Note 1
34	33Ω	1	60B28-3	BW-1-33	Or.-Or.-Blk. Surge Limiter - See Note 1

Note 1 - Used on later production only.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: TRUETONE PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
35	.067A	319Ω	3.6 Henries	74A1#	C-1711	T20C52	#Used in earlier production only.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE	STANCOR	THORDAR'N	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	
36A	2700Ω	3.1Ω	175Ω	.6Ω	Part of 78B4-4	A-3876*	T22545*	*Bend mounting tabs down, file out slots and mount on original bracket.
B	2700Ω	3.1Ω	175Ω	.6Ω	Part Of 78B13-1	A-3876*	T22545*	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-106		
37A	PM	3.1Ω	78B4-4	Mod. P5-W		
B	PM	3.1Ω	78B13-1	ST-107		
				Mod. P5-V		Alternate Speaker
	CONE DIA.	VC DIA.				
38A	4-9/16"	1/2"				
B	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
39	*Loop Ant.	0Ω	1.3Ω	69B6		
40	Osc. Coil		4.5Ω	69W5	14-1040	
41	Input IF	16Ω	16Ω	72B3	16-6658	
42	Output IF	21Ω	22Ω	72B4	16-6660	

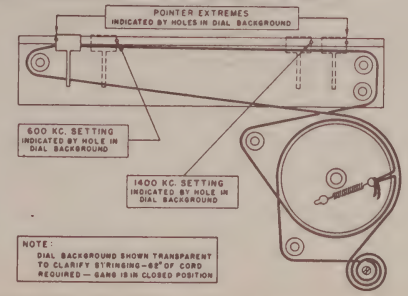
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
43	Bayonet	6-8	0.15	Brown	81A1-8		Type #47

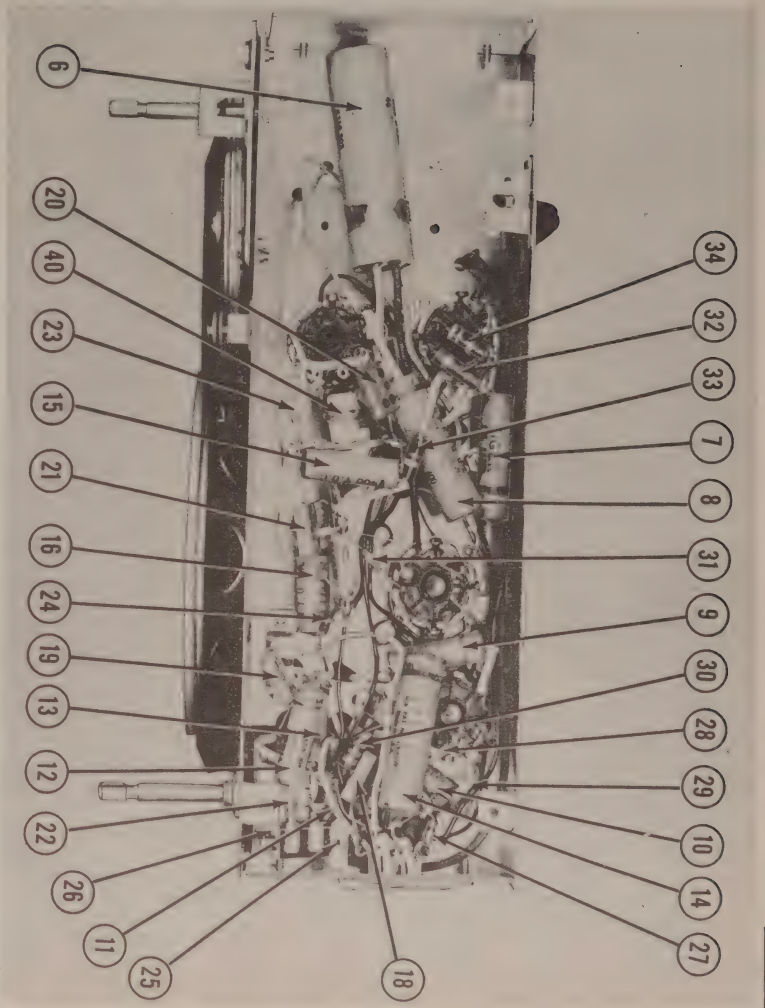
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
44	2 Gang Var. Cap.	68A2	Includes Osc. & Ant. Trimmers
	Crystal Cart.	409A1	
	Phono. Motor	40B3	Also Motors 40B1, 40B2 are used
	Pointer	28A13-1	
	Dial Scale	21B27-1	
	Switch	77B1-11	SPDT (Radio-Phono)
	"	77B1-44	SPST (Motor on-off)

DIAL STRINGING AND POINTER SETTINGS

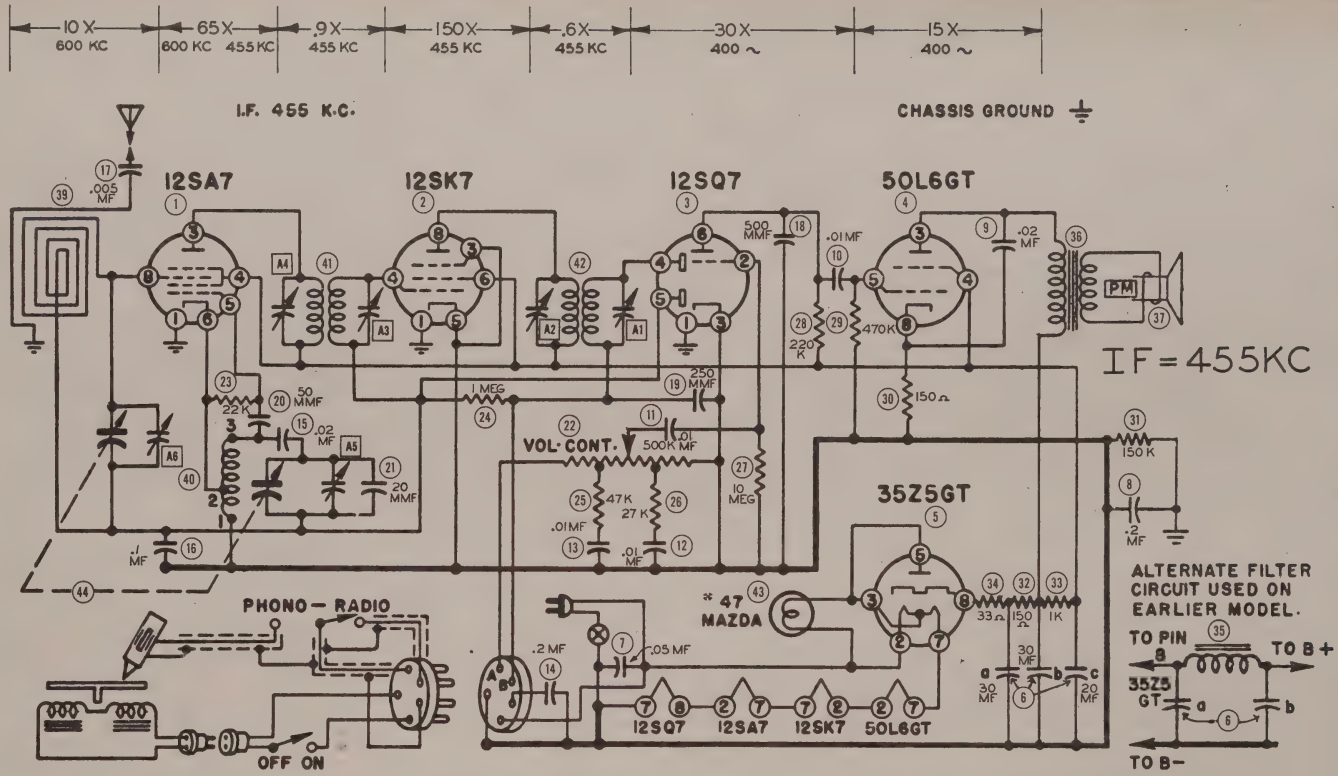

POINTER EXTREMES INDICATED BY HOLES IN DIAL BACKGROUND
600 KC. SETTING INDICATED BY HOLE IN DIAL BACKGROUND
1400 KC. SETTING INDICATED BY HOLE IN DIAL BACKGROUND
NOTE: DIAL BACKGROUND SHOWN TRANSPARENT TO CLARIFY STRINGING-68" OF CORD REQUIRED — GANG IS IN CLOSED POSITION

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D2842

TRUETONE MODEL D2842



NOTE: Connect points "A" and "B" with jumper when testing chassis with phono plug removed.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	12V.AC	80V.DC	80V.DC	−.75V.DC	0V.	24V.AC	−.75V.DC
2	12SK7	0V.	38V.AC	0V.	−.75V.DC	0V.	80V.DC	24 V.AC	80V.DC
3	12SQ7	0V.	−.65V.DC	0V.	−.75V.DC	−.2 V.DC	60 V.DC	0V.	12 V.AC
4	50L6GT	0V.	38V.AC	106V.DC	80V.DC	0V.	0V.	90V.AC	5V.DC
5	35Z5GT	0V.	117 V.AC	113V.AC	115V.DC	113V.AC	106V.DC	90V.AC	117 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	128Kꭥ	15ꭥ	600Kꭥ	600Kꭥ	22Kꭥ	5ꭥ	26ꭥ	1.3MEG.
2	12SK7	128Kꭥ	37ꭥ	0ꭥ	1.3MEG.	0ꭥ	600Kꭥ	26ꭥ	600Kꭥ
3	12SQ7	128Kꭥ	8 MEG.	0ꭥ	1.7MEG.	350Kꭥ	1 MEG.	0ꭥ	15ꭥ
4	50L6GT	128 Kꭥ	37ꭥ	600Kꭥ	600Kꭥ	420Kꭥ	INF.	78ꭥ	134ꭥ
5	35Z5GT	INF.	100ꭥ	84 ꭥ	600Kꭥ	84 ꭥ	600Kꭥ	78ꭥ	600Kꭥ

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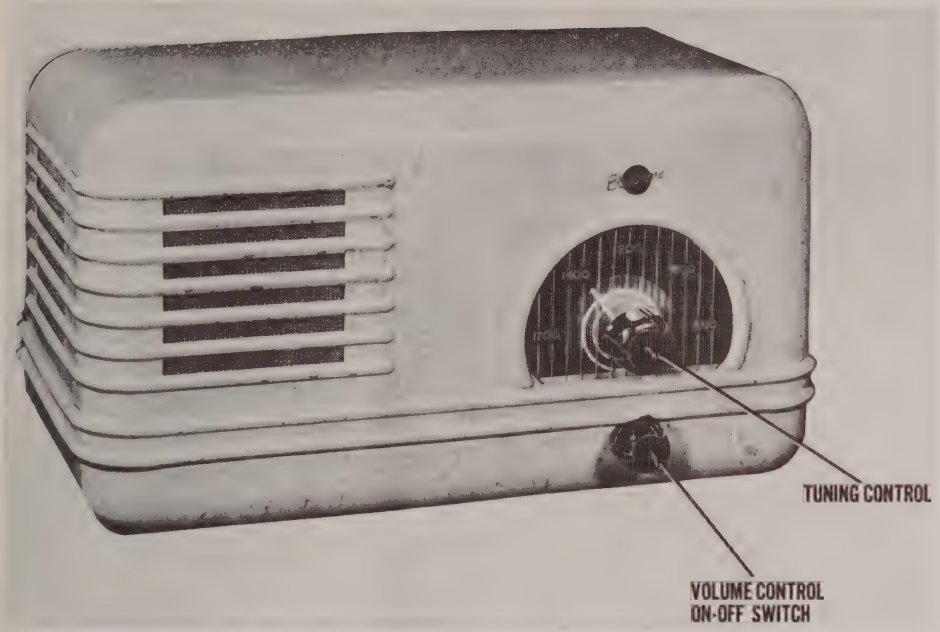
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ELECTONE
MODEL T5TS3

ELECTONE
MODEL T5TS3

ELECTONE MODEL T5TS3

TRADE NAME Electone Model T5TS3
MANUFACTURER Northeastern Engineering Inc., Manchester, New Hampshire
TYPE SET AC-DC Superheterodyne Receiver
TUBES (FOUR) Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output

POWER SUPPLY 117 Volts AC-DC RATING .325 Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1725KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set dial so that the dial line is to the right and parallel with the base of the dial back plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of front section of variable. Low side to B-.	456KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMFD	High side to ext. ant. lead. Low side to B-.	1725KC	"	"	A5	Adjust for maximum output.
200 MMFD	"	1500KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ELECTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		12SA7GT	8R	
2	IF Amp.		12SK7GT	8N	
3	Det.-AVC-AF		12SQ7GT	8Q	
4	Power Output		50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ELECTONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	50	150		DSB-5030-150	TA-530	PRSA150-40-40	BRD3515	2N520	Filter-Red
B	30	150							" -Green
6	.05	400		S-4-05	TC-15	484-05	DT4S5	TP426	Line filter
7	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Output Plate Bypass
8	.02	400		S-4-02	TC-12	484-02	DT4S2	TP423	Audio Coupling
9	.002	600		S-6-002	TC-22	684-002	DT6D2	TP405	" "
10	.05	200		S-4-05	TC-15	484-05	DT4S5	TP426	AVC Filter
11	.05	400		S-4-05	TC-15	464-05	DT4S5	TP426	Line Isolation
12	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
13	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	MC240	IF Bypass Vol. Cont.
14	1000•	500		MO.3-21	1FM-21	1468-001	1W5D1	MC255	Ext. Antenna Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ELECTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	2 Meg.	1		MR55	D13-139	M-66-Z	Volume Control. See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch			M26	41	SW-A	" " " "
15A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control. See Note 2
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions.
C	Switch			M26	41	SW-A	" " " "

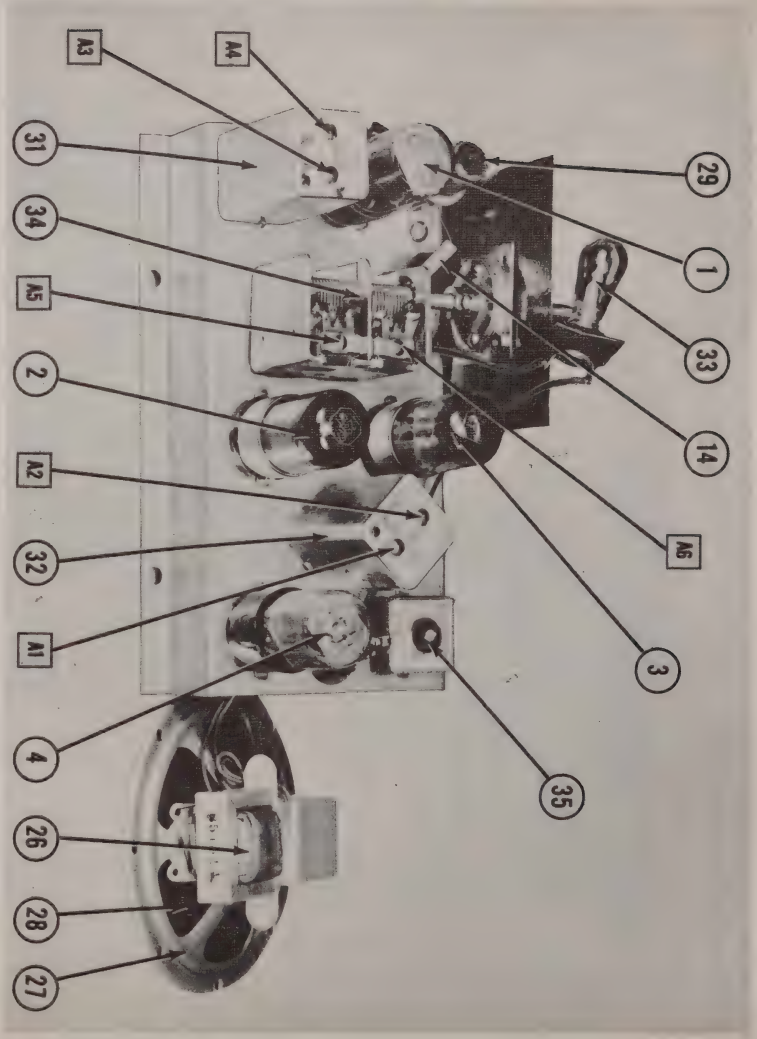
Note 1 Used in later production.
Note 2 " " early "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ELECTONE PART No.	IRC PART No.	IDENTIFICATION CODES
16	250KΩ	½		BTS-270K	Red-Grn.-Yl. Line Isolation See Note 3
17	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
18	3.3Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " Plate Load
21	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
22	150Ω	½		BW-½-150	Br.-Grn.-Br. " Cathode
23	1000Ω	5		AB-1000	Filter
24	15Ω	½		BW-½-15	Surge Limiter
25	200Ω	10		AB-200	Line Dropping

Note 3 - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ELECTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
26	1700Ω	3.4Ω	175Ω	.7Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ELECTONE PART No.	JENSEN PART No.		
27	FIELD PM	VC IMP. 3.4Ω		ST-105 Mod. P5-V		
28	CONE DIA 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ELECTONE PART No.	MEISSNER PART No.	
29	Ant. Coil	38.3Ω	5Ω		14-1026	
30	Osc. Coil		6.5Ω		14-1040	
31	Input IF	16Ω	16Ω		16-6658	
32	Output IF	14.5Ω	14.5Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ELECTONE PART No.		
33	Screw	11S	.05				Type 6S6

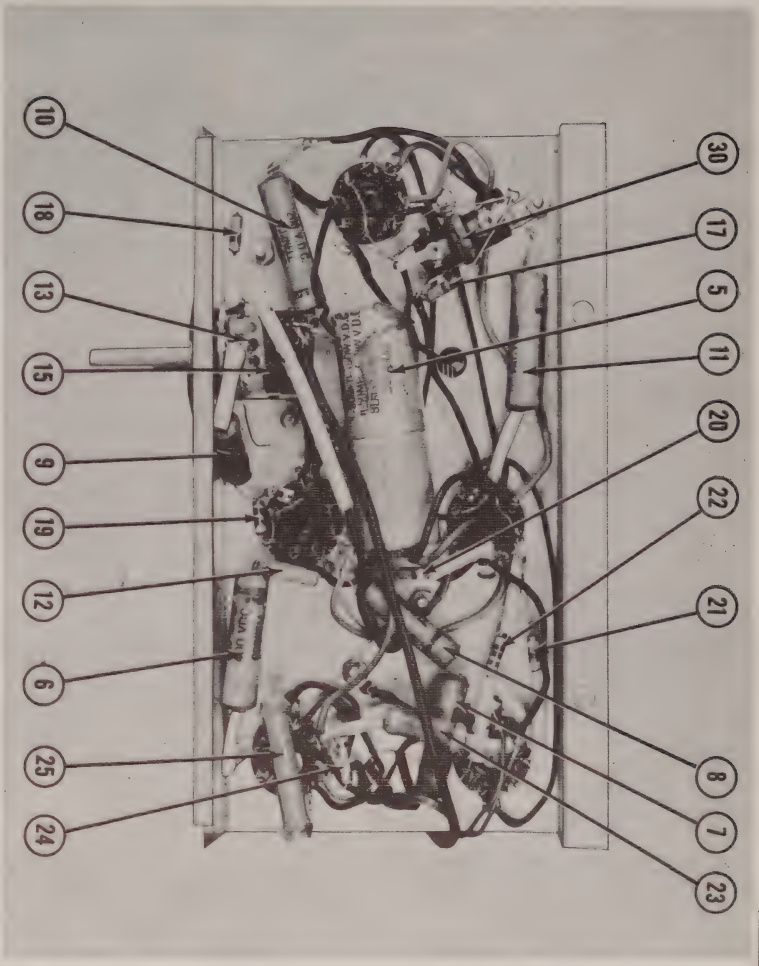
MISCELLANEOUS

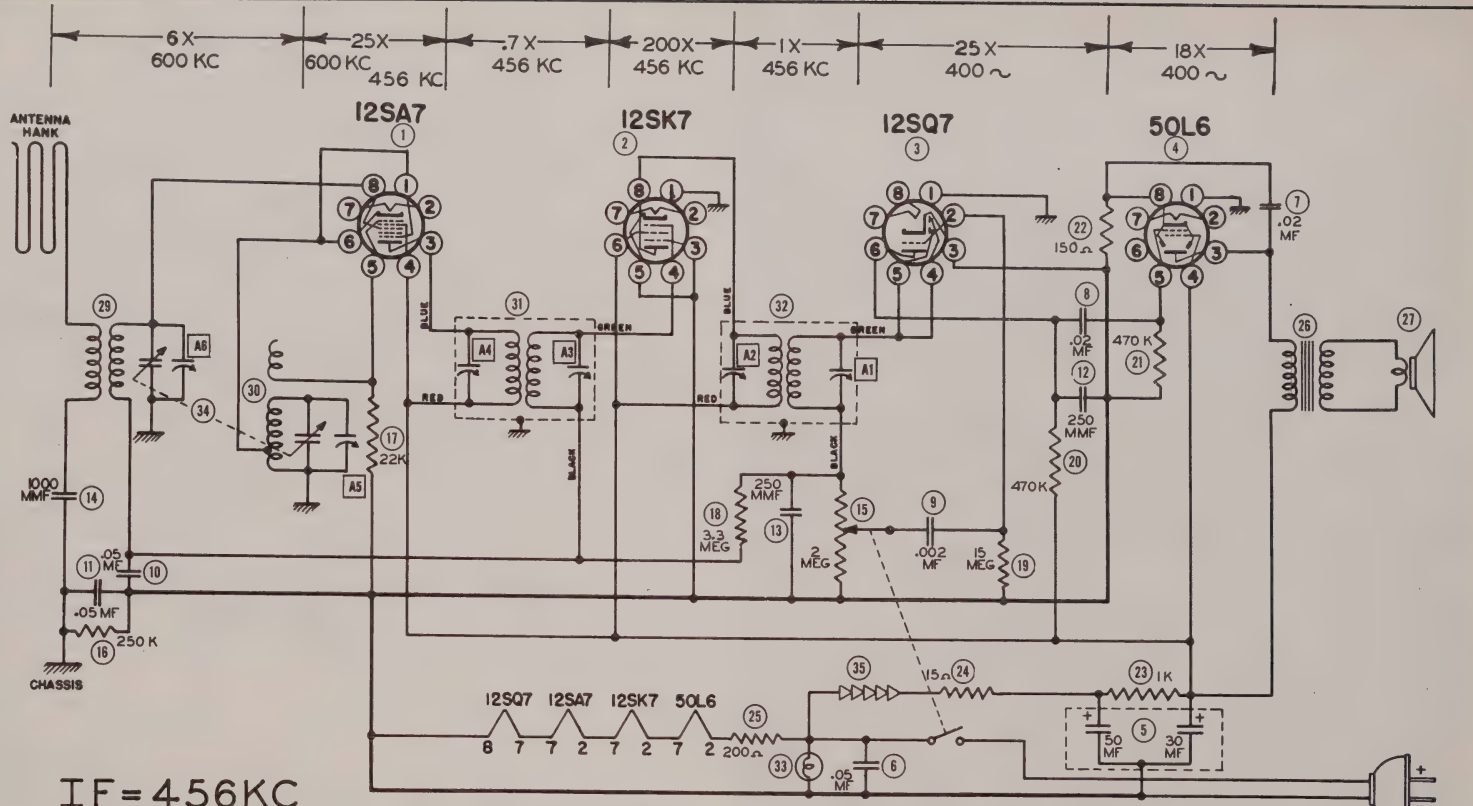
ITEM No.	PART NAME	ELECTONE PART No.	NOTES
34	2 Gang Var. Cap		(37-464 MMF, 30-207 MMF)
35	Rectifier		Selenium 100MA 5 Plates

SERVICE HINT

If difficulty is encountered with this receiver, with respect to detuning of the set by pressing in on the condenser drive knob, wedge a piece of rubber between the chassis and the rear of the variable condenser.

CHASSIS—BOTTOM VIEW





IF=456KC

Pin No.	12SA7 Volt.	12SA7 Res	12SK7 Volt	12SK7 Res.
1	0V.	.8Ω	0V.	0Ω
2	23.5V.AC	21Ω	35V.AC	32Ω
3	83V.DC	20KΩ	0V.	0Ω
4	83V.DC	20KΩ	-2V.DC	5 MEG.
5	-3V.DC	22KΩ	0V.	0Ω
6	0V.	.8Ω	83V.DC	20KΩ
7	12V.AC	10Ω	23.5V.AC	21Ω
8	-2V.DC	5MEG.	83V.DC	20KΩ

Pin No.	12SQ7 Volt.	12SQ7 Res	50L6 Volt	50L6 Res.
1	0V.	0Ω	0V.	INF.
2	-85V.DC	15 MEG.	87V.AC	67Ω
3	0V.	0Ω	77V.DC	20KΩ
4	-55V.DC	2 MEG.	83V.DC	20KΩ
5	-55V.DC	2 MEG.	0V.	410 KΩ
6	50V.DC	550KΩ	0V.	INF.
7	12V.AC	10Ω	35V.AC	32Ω
8	0V.	0Ω	4.6V.DC	112Ω

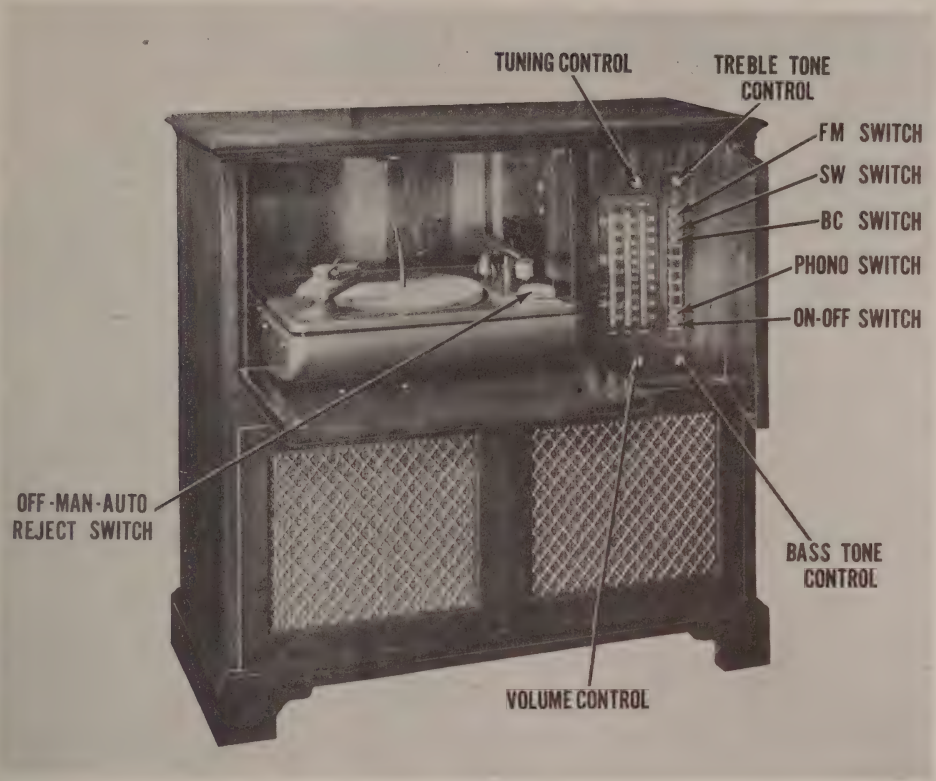
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-34

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PHILCO
MODEL 46-1213

PHILCO MODEL 46-1213

TRADE NAME	Philco, Model 46-1213
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated 3-Band Superheterodyne Receiver for AM & FM Reception with Automatic Phonograph, Pushbutton Tuning & Self Contained Loop Antenna
TUBES(ELEVEN)	Types, 7W7 FM Amp.(RF), 7F8 Converter, 7H7 1st IF Amp., 7B7 2nd IF Amp., 7H7 3rd IF Amp., 6SQ7GT AM DET.-AVC-AF, 7AF7 Phono Amp.-Phase Inverter, FM1000 FM Det., (2) 6V6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	105-120 Volts AC
RATING	1.04 Amp. @ 117 Volts AC
FREQUENCY RANGES -	STANDARD BROADCAST 540-1720KC SHORT WAVE 9.3-15.5MC FM 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM Amp. (RF)	7W7	7W7	8BJ	
2	Converter	7F8	7F8	8BW	
3	1st IF	7H7	7H7	8V	
4	2nd IF	7B7	7B7	8V	
5	3rd IF	7H7	7H7	8V	
6	AM Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
7	Phono.Amp.-Ph.Inv	7AF7	7AF7	8AC	
8	FM Det.	FM 1000	FM 1000		
9	Power Output	6V6GT	6V6GT	7AC	
10	Power Output	6V6GT	6V6GT	7AC	
11	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
12	15	450	30-2568-1	DY-20-450	EL-15	AF3J	UP4AJ15	FP143	Filter
13A	30	450	30-2570-1	DY-403 ‡	EL-424	AF444J	UP9DJ53‡	FP429‡	■ Filter
B	15	450							▲ "
C	10	450				PRS450-10			"
14A	10	450	30-2552	DY-2x10-450	EL-210	AF44J	UP1145	FP231	■ "
B	10	450							▲ "
15A	.01		3903-ODG	S-6-01	TC-11	684-01	DT6S1	TP410	Line Filter
B	.01			S-6-01	TC-11	684-01	DT6S1	TP410	" "
16	.003	600	61-0117	S-6-003	TC-23	684-003	DT6D3	TP406	RF Filter
17	.5	400	61-0133	S-4-5	TC-5	434-.5	DT4P5	TP432	Bias Filter
18	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation *
19	.003	600	61-0117	S-6-003	TC-23	684-003	DT6D3	TP406	Output Plate Bypass
20	.006	600	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Audio Coupling
21	.1	600	61-0113	S-6-1	TC-1	684-.1	DT6P1	TP418	7AF7 Plate Decoupling
22	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Audio Coupling
23	.001	600	45-3500-5	S-6-001	TC-21	684-001	DT6D1	TP404	Tone Compensation
24	.006	600	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Audio Coupling
25	.006	600	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	" "
26	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation
27	.02	600	61-0108	S-6-02	TC-12	684-02	DT6S2	TP412	Audio Coupling
28	.006	600	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Tone Compensation
29	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	RF Bypass Pwr. Supp.
30	.03	600	45-3500-1	S-6-03	TC-13	684-03	DT6S3	TP413	Audio Coupling
31	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	FM Det Screen Bypass
32	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	FM Det Fil. Bypass
33	.006	600	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Audio Coupling
34	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	3rd IF Screen Bypass
35	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	3rd IF Plate Decoup.
36	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	3rd IF Cath. Bypass
37	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	FM Det. Grid Bypass
38	.05	600	61-0122	S-6-05	TC-15	684-05	DT6S5	TP415	AVC Filter
39	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	RF Bypass Pwr. Supp.
40	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	2nd IF Screen Bypass
41	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	2nd IF Fil. Bypass
42	.01	600	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	AVC Filter
43	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	2nd IF Cath. Bypass
44	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	IF Plate Decoupling
45	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	1st IF Screen Bypass
46	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	1st IF Fil. Bypass
47	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	Wave Trap †
48	.01	600	61-0122	S-6-01	TC-11	684-01	DT6S1	TP410	Conv. Plate Decoup.
49	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	Audio Plate Bypass
50	100	500	6010105407	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Tone Compensation
51	1500	500	6020155404	MW.5-215	1FM-215	1467-0015	1W5D15	MC456	FM Det. Plate Bypass
52	47	500	6000515307	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	FM Det. Osc. Grid
53	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	RF Bypass Diode
54	100	500	6010105407	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	FM AVC Coupling
55	100	500	6010105407	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Bypass Diode
56	750	500	6010755301	MO.3-38	MS-38	1468-00075	1W5T8	MC251	Cath. Coupling
57	100	500	6010105407	MO.5-31	1FM-31	1468-0001	5W5T1	MC235	Osc. Grid Capacitor

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
58	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	Conv. Plate Bypass
59	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	RF Bypass Pwr. Supp.
60	510	500	6010515307	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Osc. Feedback AM
61	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	RF Coupling
62	510	500	6010515307	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	RF Plate Decoupling
63	510	500	6010515307	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	RF Screen Bypass
64	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	RF Filament Bypass
65	240	500	6010245307	MO.5-325	1FM-325	1468-00025	5W5T25	MC240	RF Coupling
66	485	500	301220-23						Osc. Feedback PB
67	285	500	30-1220-9						" "
68	300	500	30-1220-10	MOS.5-33	MS-33	1469-0003	5R5T3	MCB241	Fixed Padder
69	255	500	6010255237	MOS.5-325	1FM-325	1469-00025	5R5T25	MCB240	" "
70	47	500	6000515307	MO.5-45	1FM-45	1468-00005	5W5Q5	MC225	RF Coupling
71	10	500	6000105407	MOS.5-41	MS-41	1469-00001	5R5Q1	MC215	" "

* Not used in all models.
† Wind same number of turns of wire on replacements as on original.
‡ Do not use bypass section.

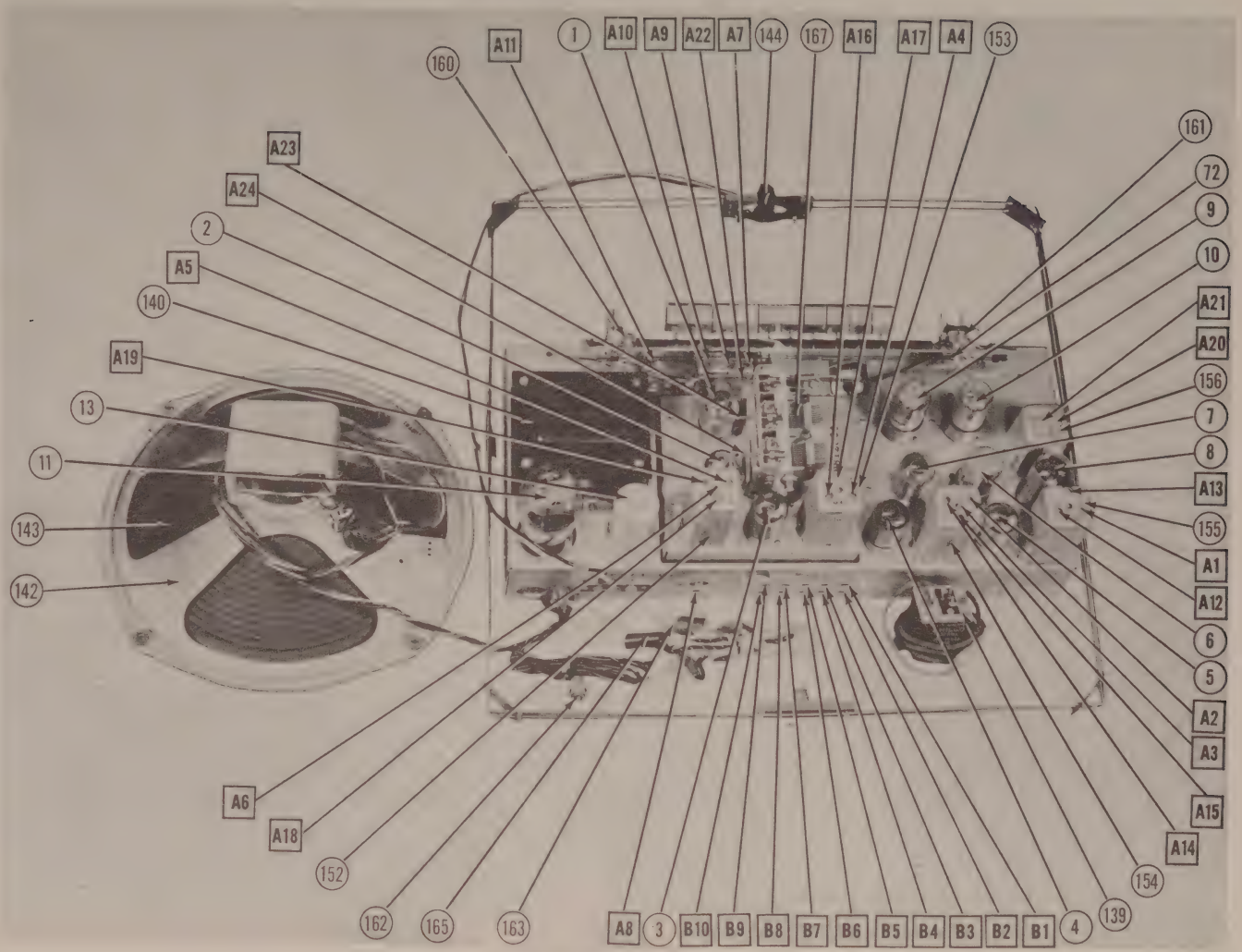
CONTROLS

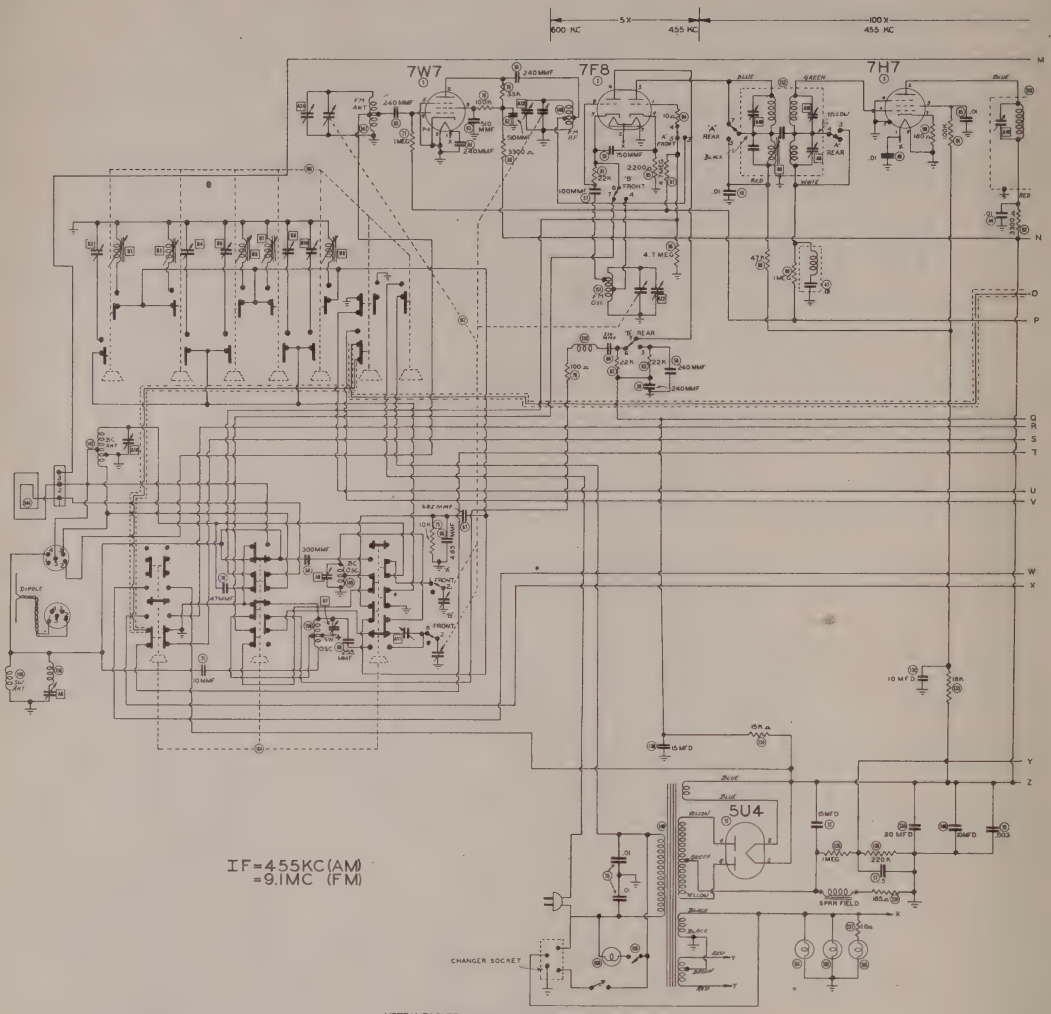
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
72A	2 Meg.	1	33-5535-5	MRT451	D18-139X	T-116	Volume Control.
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 72A per instructions
73A	1 Meg.	1	33-5539-8	UM160			Bass Control
B	Shaft		Not Req.	Not Req.			Attach to 73A per instructions
74A	500KΩ	1	33-5539-7	MR48	D13-133	M-60-Z	Treble Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 74A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
75	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Oscillator Cathode Push Button
76	100Ω	½	66-1103340	BW-½-100	Br.-Blk.-Br. Parasitic Suppressor
77	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid Load
78	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.Yl. " Screen Dropping
79	33KΩ	1	66-3333340	BTA-33K	Or.-Or.-Or. " Plate Load
80	3300Ω	½	66-2333340	BTS-3300	Or.-Or.-Red Decoupling
81	22KΩ	½	66-3223340	BTS-22K	Red-Red-Or. Oscillator Grid
82	22KΩ	½	66-3223340	BTS-22K	Red-Red-Or. " Plate Load
83	22KΩ	½	66-3223340	BTS-22K	Red-Red-Or. " " "
84	10Ω	½	66-0103340	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
85	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Converter Cathode
86	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
87	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. Converter Grid
88	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. " Plate Dropping
89	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.Grn. AVC Network
90	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. 1st IF Cathode
91	100KΩ	1	66-4103340	BTA-100K	Br.-Blk.-Yl. " " Screen Dropping
92	3300Ω	½	66-2333340	BTS-3300	Or.-Or.-Red " " Plate Decoupling
93	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
94	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. 2nd IF Cathode
95	3300Ω	½	66-2333340	BTS-3300	Or.-Or.-Red " " "
96	100KΩ	1	66-4103340	BTA-100K	Br.-Blk.-Yl. " " Screen Dropping
97	3300Ω	½	66-2333340	BTS-3300	Or.-Or.-Red " " Plate Decoupling
98	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Bleeder
99	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. AVC Network
100	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. 3rd IF Cathode
101	100Ω	½	66-1103340	BW-½-100	Br.-Blk.-Br. " " "
102	82KΩ	1	66-3823340	BTA-82K	Gray-Red-Or. " " Screen Dropping
103	3300Ω	½	66-2333340	BTS-3300	Or.-Or.-Red " " Plate Decoupling
104	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
105	270KΩ	½	66-4273340	BTS-270K	Red-Vi.-Yl. " Load

CHASSIS—TOP VIEW





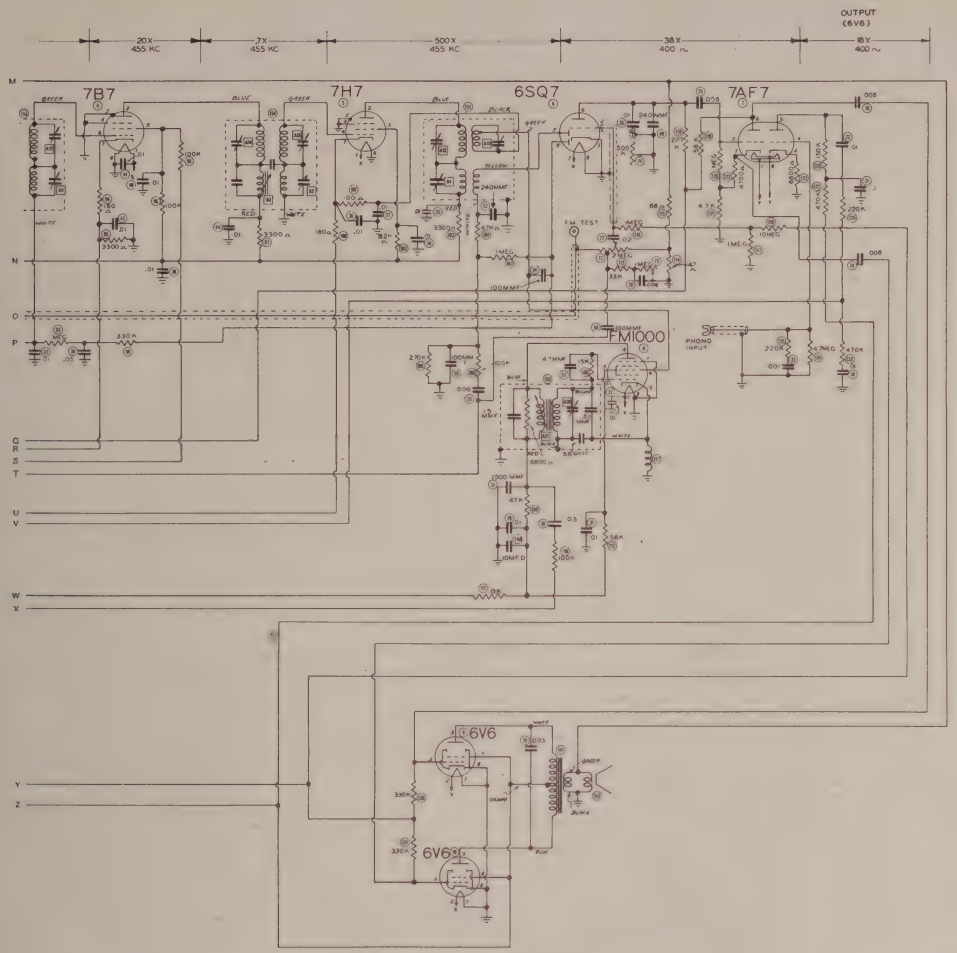
NOTE: MEASURE VOLTAGE ON TUBE NUMBER 8 IN FM POSITION.

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7W7	6.8 V.AC	140 V. DC	65 V.DC	0V.	0V.	-.4 V.DC	0V.	0V.
2	7F8	-.5V.DC	6.8V. DC	142V.DC	1.8V. DC	0V.	130V.DC	0V.	-4 V.DC
3	7H7	6.8 V.AC	270V.DC	92 V.DC	0V.	0V.	0V.	.9 V.DC	0V.
4	7B7	6.8V.AC	270V.DC	119 V.DC	0V.	0V.	-.2V. DC	7 V.DC	0V.
5	7H7	6.8 V.AC	245V.DC	88 V.DC	0V.	0V.	0V.	1.5 V.DC	0V.
6	6SQ7GT	0V.	-.6 V.DC	0V.	-.7V. DC	-.2 V.DC	118 V.DC	6.8 V.AC	0V.
7	7AF7	3.3 V.AC	55 V.DC	137 V.DC	29 V.DC	0V.	5.4 V.DC	2.8 V.DC	3.3 V.AC
8	FM 1000	6.8 V.AC	-.7 V.DC	0V	218 V.DC	37 V.DC	1.5 V.DC	0V.	0V.
9	6V6GT	0V.	6.8 V.AC	260 V.DC	280 V.DC	-4.9 V.DC	0V.	0V.	0V.
10	6V6G	0V.	6.8 V.AC	264 V.AC	280 V.DC	-4.4 V.DC	-.4 V.DC	0V.	0V.
11	5U4G	0V.	282 V.DC	6.8 V.AC	305 V.AC	17 V.AC	305 V.AC	0V.	280 V.DC

472-33

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



NOTE: MEASURE RESISTANCE ON TUBE NUMBER 8 IN FM POSITION.

RESISTANCE READINGS

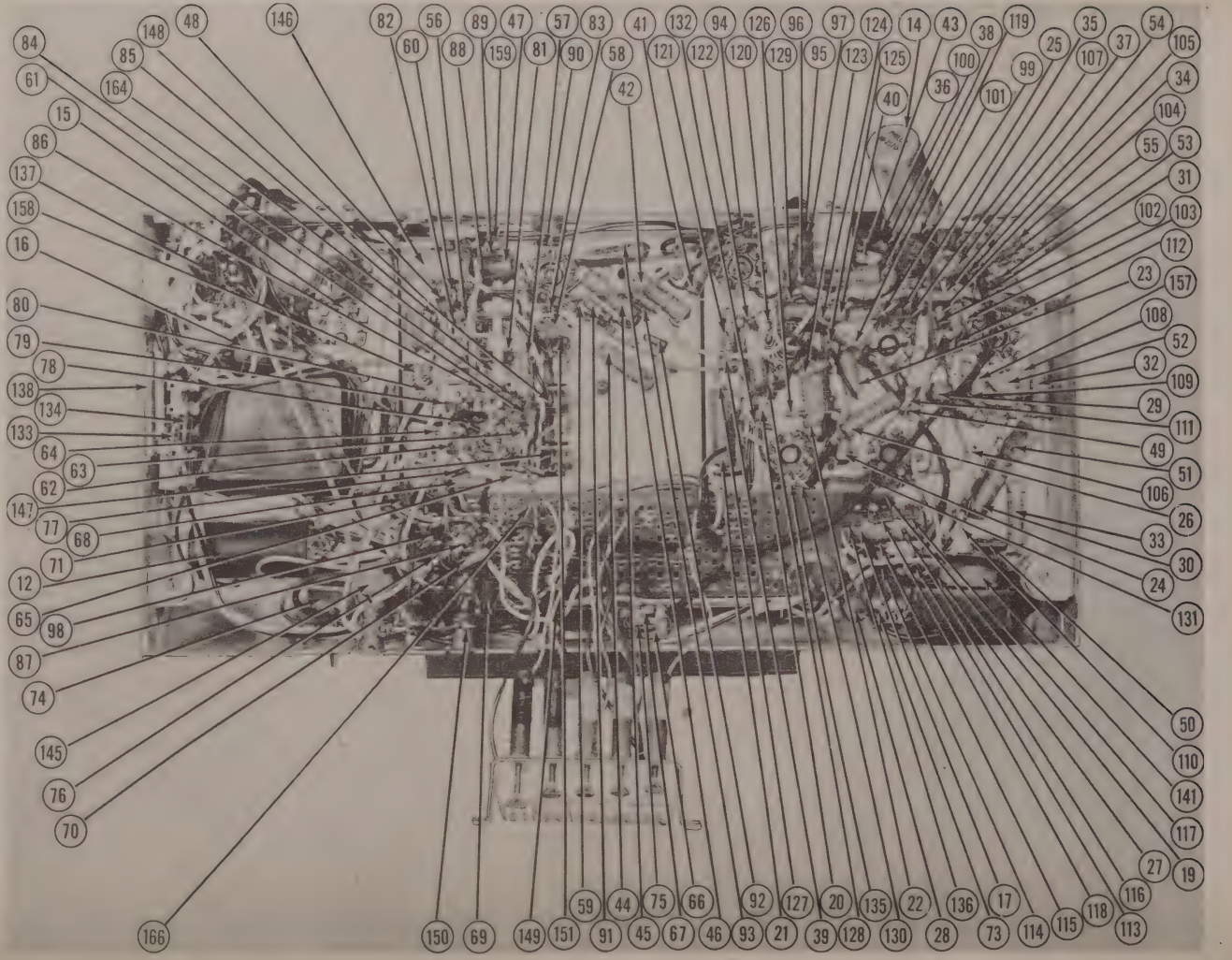
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7W7	.1Ω	210 KΩ	280 KΩ	0Ω	0Ω	2.7 MEG.	0Ω	0Ω
2	7F8	2.7 MEG.	.1Ω	200 KΩ	2200Ω	.5Ω	185 KΩ	0Ω	20 KΩ
3	7H7	.1Ω	150 KΩ	250 KΩ	0Ω	0Ω	2.7 MEG.	150Ω	0Ω
4	7B7	.1Ω	150 KΩ	80 KΩ	0Ω	0Ω	1.8 MEG.	2.8 KΩ	0Ω
5	7H7	.1Ω	150 KΩ	230 KΩ	0Ω	0Ω	13Ω	140Ω	0Ω
6	6SQ7GT	0Ω	1.7 MEG.	0Ω	1.1 MEG.	320 KΩ	255 KΩ	.1Ω	0Ω
7	7AF7	.2Ω	46 KΩ	220 KΩ	900 KΩ	4.7 MEG.	170 KΩ	6800Ω	.2Ω
8	FM1000	.1Ω	14 KΩ	7.3Ω	210 KΩ	220 KΩ	240Ω	0Ω	0Ω
9	6V6GT	0Ω	.1Ω	150 KΩ	150 KΩ	420 KΩ	0Ω	0Ω	0Ω
10	6V6GT	0Ω	.1Ω	150 KΩ	150 KΩ	500 KΩ	1.3 KΩ	0Ω	0Ω
11	5U4G	0Ω	150 KΩ	2.5Ω	620Ω	620Ω	620Ω	0Ω	150 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-33

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
106	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensations
107	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
108	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. FM Detector Oscillator Grid
109	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. " " " Plate Dropping
110	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensation
111	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Voltage Dropping
112	56KΩ	½	66-3563340	BTS-56K	Grn.-Blue-Or. FM Detector Screen Dropping
113	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Tone Compensation
114	4.7Ω	1	66-9473340	BW-1-4.7	Yl.-Vi.-Gold Feedback
115	68Ω	½	66-0683340	BW-½-68	Blue-Gray-Blk. "
116	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Grid
117	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias
118	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue "
119	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. 1st AF Plate Load
120	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid
121	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. " " Cathode
122	4700Ω	½	66-2473340	BTS-4700	Yl.-Vi.-Red Bias
123	680Ω	½	66-2683340	BTS-6800	Blue-Gray-Red Phono Amplifier Cathode
124	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. " " Grid
125	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. Tone Compensation
126	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. " "
127	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Phono Amplifier Plate Decoupling
128	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. " " " Load
129	56KΩ	½	66-3563340	BTS-56K	Grn.-Blue-Or. Phase Inverter " "
130	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. Output Grid
131	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. " "
132	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Tone Compensation
133	18KΩ	1	66-3183340	BTA-18K	Br.-Gray-Or. Voltage Dropping
134	15KΩ	1	66-3153340	BTA-15K	Br.-Grn.-Or. "
135	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias
136	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. " Bleader
137	10Ω	1	66-0103340	BW-1-10	Br.-Blk.-Blk. Series Pilot Light
138	165Ω	10	33-3435-1	AB-150	Bias

TRANSFORMER (MATCHING)

ITEM NO.	RATINGS		REPLACEMENT DATA			
	RESISTANCE PRI. SEC.	TURNS RATIO PRI. TO SEC.	PHILCO PART NO.	STANCOR PART NO.	THORDARSON PART NO.	INSTALLATION NOTES
139	.3Ω 5700Ω	1 to 70	32-8256			

TRANSFORMER (POWER)

ITEM No.	RATING					REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	SEC. 4	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.
140	117V AC @1.04A	700V CT @.128A	5.2V AC @ 3.1A	6.3V AC @ 3.6A	6.5V AC @ .3A	32-8282		T22R33**

**Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
141	8200Ω CT	3.2Ω	580Ω CT	.8Ω	32-8274	A-3824**	T22S56**		**Drill new mounting holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
142	460Ω	3.6Ω	36-1606			
	CONE DIA.	VC DIA.				
143	11-3/8"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
144	Loop		0Ω	76-2252		
145	BC Ant. Coil		1.5Ω	32-4049-1		
146	SW Ant. Coil		0Ω	32-4050-2		
147	FM " "		0Ω	32-3993		
148	FM Conv. Grid		0Ω	32-3992		
149	BC Osc. Coil		3Ω	32-4019-1	14-1040	
150	SW Osc. "		0Ω	32-3996		
151	FM " "		0Ω	32-3994		
152A	1st 455KC IF	1Ω	21Ω	32-4020-1		
152B	1st 9.1 MC "	1.6Ω	1.5Ω	32-4020-1		
153A	2nd 455KC IF	1.2Ω	70 #	32-4001		# Includes both secondaries.
153B	" 9.1MC "			32-4001		
154A	3rd 455KC IF	9Ω§	13.5Ω§	32-4002		§ Includes both primaries and both secondaries.
154B	" 9.1MC "			32-4002		
155A	4th 455KC "	6.5Ω★	8Ω	32-4003		★ Includes both primaries
155B	" 9.1MC "			32-4003		
156	FM Det. Trans	1Ω	.8Ω	32-4004		
157	Choke		8Ω	32-3352		
158	RF Choke	0Ω		32-4089		
159	RF Choke	0Ω		32-4111		

DIAL LIGHT

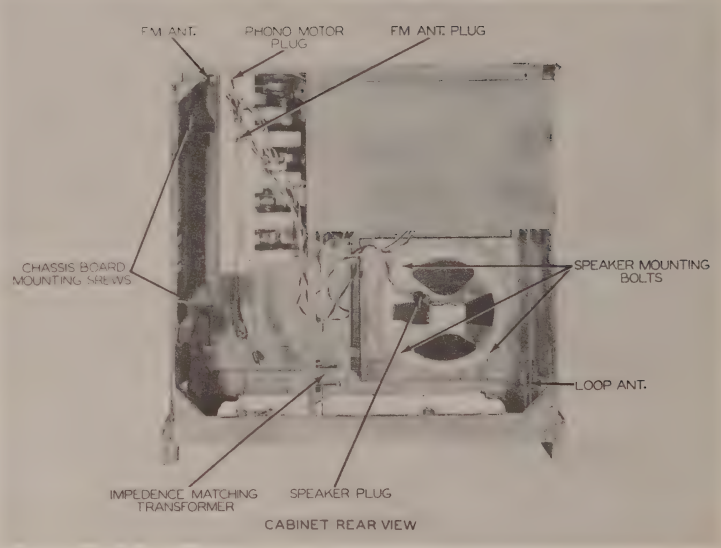
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
160	Bayonet	6-8	0.2	White	34-2040		
161	Bayonet	6-8	0.2	White	34-2040		
162	Bayonet	6-8	0.2	White	34-2040		
163	Screw	110	0.5		34-2484		Frosted Glass

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
164	Bandswitch	76-2211	3-Section Rotary Switch
165	Mercury Switch	76-2140-1	Bin Lamp Control
166	Pushbutton Assby.		
167	3 Gang Var. Cap.	31-2694-1	
	Trimmer Assby.	31-6477	A7, A9, A10
A8	Trimmer	31-6473-2	
A11	Trimmer	31-6473-3	
	Pushbutton Pad. der Assby.	31-6479	B1, B3, B5, B7, B9
	Dial Scale	76-2324	
	Pointer	56-3179	
	Automatic Changer	35-1297	Type M-4

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs from dial panel of receiver.
2. Disconnect the phono-pickup plug from the matching transformer.
3. Disconnect the plug of the matching transformer from the receiver input receptacle.
4. Disconnect brown and white antenna lead plug from chassis.
5. Disconnect loop antenna black and white leads from terminal strip on chassis.
6. Disconnect phono-motor plug from chassis.
7. Pull out dial light and assembly from front of cabinet.
8. Remove the dial light from the bracket which lays on the top innermost side of record changer compartment.
9. Remove mercury switch from clip bracket in record changer compartment.
10. Remove four hex head machine screws holding chassis board to cabinet. Remove chassis board and chassis.
11. Remove five hex head machine bolts holding chassis to chassis board. Remove chassis.
12. Remove loop antenna by removing the Phillips screw, spacers, and washers holding loop to cabinet.
13. Removing two Phillips head screws holding matching transformer to cabinet. Remove transformer.
14. Remove four hex nuts and washers holding speaker to speaker bolts. Remove speaker.

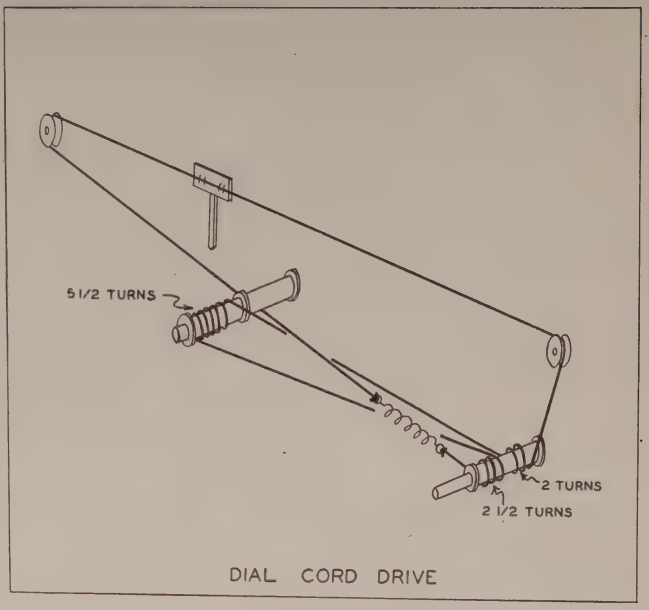


CABINET REAR VIEW

PUSHBUTTON ADJUSTMENTS

The frequency range of pushbuttons reading from left to right are as follows; 540-1000 KC, 600-1200 KC, 650-1300 KC, 850-1500 KC, 900-1600 KC. To set up pushbuttons for automatic tuning, proceed as follows.

1. Turn on receiver and allow to warmup for at least 15 minutes.
2. List five desired stations arranged in order from low to high frequencies, making sure each will fall within range of button to be used.
3. Press in left station selector button and adjust B_1 to tune in first station on list.
4. Adjust B_2 for maximum volume.
5. Follow same procedure for setting up remaining pushbuttons adjusting B3, B5, B7 and B9 to tune in desired stations and adjusting B4, B6, B8 and B10 for maximum volume.
6. For greater accuracy repeat all adjustments.



DIAL CORD DRIVE

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Reference marks referred to are found along bottom side of dial backplate. To set dial pointer turn variable fully closed and set pointer to last reference mark on left end of dial back plate. Volume control should be at maximum, bass control turned fully counterclockwise, treble control fully clockwise and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

For FM IF alignment use an RC load of .1 MFD. cap. in series with 4700Ω resistor. In order to connect the RC load from high side of A13 to chassis, to adjust A12, it will be necessary to insert a wire through the top of can of FM detector transformer #156. Then connect the RC load from this wire to chassis.

For FM Coil adjustments use a tuning rod. One end of this consists of brass, the other powdered iron. If when holding the brass end near the coil the output increases, expand the coil. If when holding the iron end near the coil the output increases, compress the coil. If a decrease of output is obtained when both the iron and the brass ends are held near the coil then the coil is correctly tuned. Only a small amount of compression or expansion should be used in adjusting these coils.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC modulated	BC	Variable fully open.	From terminal #3 of terminal strip on back of chassis to chassis.	A1,A2, A3,A4 A5,A6.	Adjust for maximum output.
	Loop	15MC modulated	SW	15MC (Third mark from right end)	"	A7	Using a loop of few turns of wire radiate a signal into receiver loop and adjust for maximum output. Check for image at 14.1MC.
	"	"	"	"	"	A8	Rock variable and adjust for maximum output.
	"	1700KC modulated	BC	1700KC (1st mark from right end)	"	A9	Adjust for maximum output
	"	1200KC modulated	"	Tune for maximum output.	"	A10	"
	"	550KC modulated	"	"	"	A11	Rock variable and adjust for maximum output. Repeat last three steps until no further increase in output is obtained.
.1 MFD.	High side to junction of FM RF Coil and cap. #61(240 MMFD). Low side to chassis.	9.1MC modulated	FM	Variable fully closed	"	A12	Short pin 2 of FM1000 tube to chassis. Connect RC load from high side of A13 to chassis. See preliminary notes. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A13	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 3rd IF tube #5 to chassis. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A14	Short pin 2 of FM1000 to chassis. Connect RC load from pin #6 of 3rd IF tube #5 to chassis. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A15	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 2nd IF tube #4 to chassis. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A16	Short pin 2 of FM1000 to chassis. Connect RC load from pin 6 of 2nd IF tube #4 to chassis. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A17	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 1st IF tube #3 to chassis. Adjust for maximum output.
.1 MFD.	"	"	"	"	"	A18,A19	"
.1 MFD.	High side to pin #6 of 3rd IF Tube #5. Low side to chassis.	3.1MC modulated	"	"	"	A20	Remove RC load and remove short from pin 2 of FM1000 tube. Short pin 4 of FM1000 to junction of resistor #109 and cap Nos. 30 & 51. Adjust for zero beat.
.1 MFD.	"	"	"	"	"	A21	Remove short in preceding step. Adjust for zero beat.
.1 MFD.	High side to yellow lead (pin 2) of FM dipole socket. Low side to chassis.	105MC modulated	"	105MC	"	A22	Short pin 2 of FM1000 to chassis. Adjust for maximum output.
.1 MFD.	"	88MC modulated	"	88MC	"	FM Osc. Coil #151	Adjust for maximum output See preliminary notes on tuning rod. For optimum operation repeat last 2 steps until no further output is obtained.
.1 MFD.	"	105MC modulated	"	105MC	"	A23	Rock tuning dial and adjust for maximum output.
	Dipole	"	"	"	"	A24	Fashion two dipoles with 25-30 inches of wire. Connect one dipole to yellow and black leads of FM dipole socket (pins 1 & 2), the other to output of signal generator. Radiating signal into receiver in this manner and adjust for maximum output.
	"	92MC modulated	"	92MC	"	FM RF Coil FM Ant. Coil	Adjust for maximum output See preliminary notes on tuning rod. For optimum operation repeat last 3 steps until no further improvement can be made.

MOTOROLA
B24RC, B25RC, B27RC, B28RC

TOP VIEW

GENERAL INFORMATION

These record changers are single post changers designed to play ten 10-inch or eight 12-inch records, not intermixed. The last record will be repeated until the changer is turned off.

The B24RC and B27RC are designed to be used in 1946 Motorola home receivers. The B25RC and B28RC are designed for 1946 Motorola wireless record players. These changers are identical in mechanical operation, though their appearances are slightly different. Parts which are not interchangeable are so marked in the parts list.

For service information on phono oscillator chassis HS-18, used with the B25RC and B28RC, see Motorola WR6, WR7, WR8.

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MANUAL OPERATION

To play records manually, push the right-hand button to "manual" position and load one record at a time. Turn the record support to 12-inch position to allow more room for loading and unloading. The records may be tilted to clear the lip of the record support as they are placed on the turntable.

AUTOMATIC OPERATION

Up to ten 10-inch or eight 12-inch records may be loaded so that they rest on the eccentric in the spindle assembly and on the record support platform. Turn the motor switch to "on," and push the control button momentarily to "Reject." The entire stack of records will be played, and the last record repeated until the changer is turned off.

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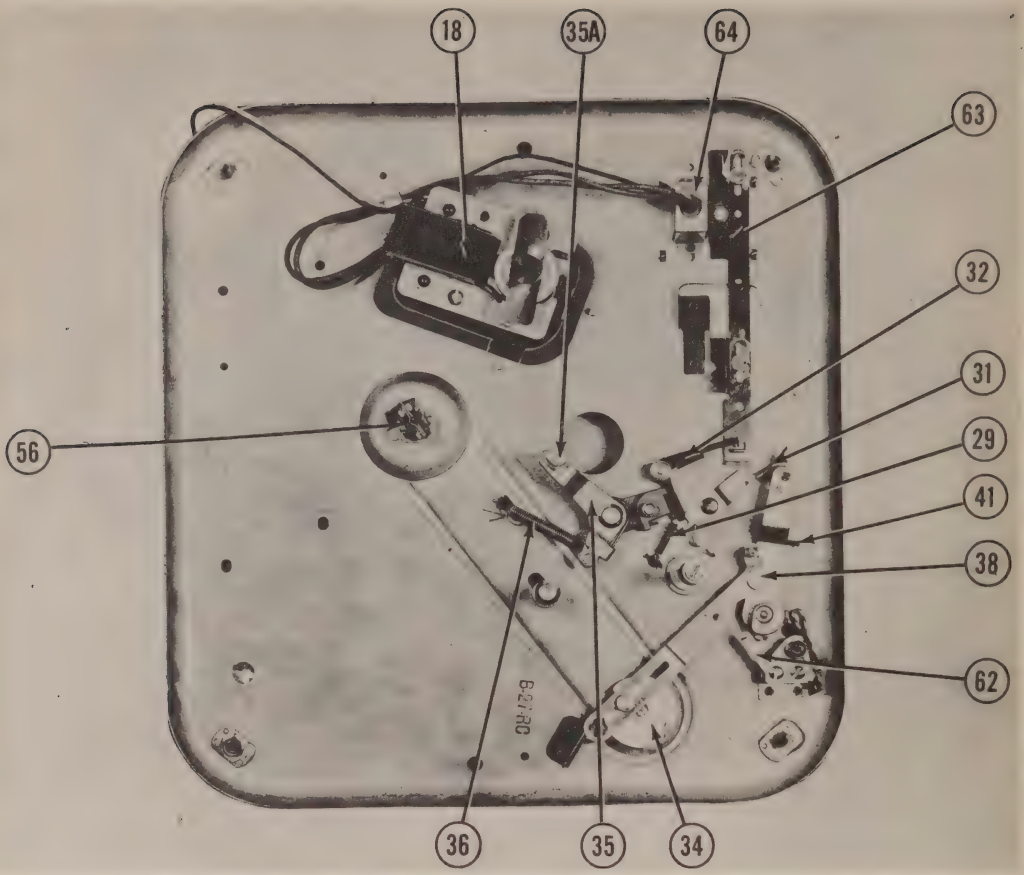


BOTTOM VIEW MINUS CAM AND GEAR ARM

THE CHANGE CYCLE

As the end of the record is reached and the needle moves into the cutoff groove, one of two things can happen:

1. If the needle comes within 1⅞" of the spindle, the positive trip screw (41) strikes the trip link, thereby releasing the trigger (32 and 35).
2. As the arm nears the center of the record, the trip pawl (Part of 38) engages the serrated portion of the ratchet arm (32). When the eccentric groove causes the arm to move away from the spindle, the trip pawl straightens, pushing the ratchet arm away and thus releasing the trigger.

Tripping the trigger releases the bell crank (35) and allows its tension spring (36) to push the cycle drive pulley (20) against the inside rim of the turntable. At the same time, the roller on the bell crank leaves the detent notch in the main cam (44), allowing the cam to revolve.

As the main cam revolves, the pickup lift rod (3A) rides out of the inclined section, forcing the pickup clear of the record.

Continued revolution of the main cam causes the stud on the selector arm (38) to follow the specially shaped groove in the top of the cam, moving the pickup arm outward, clear of the record.

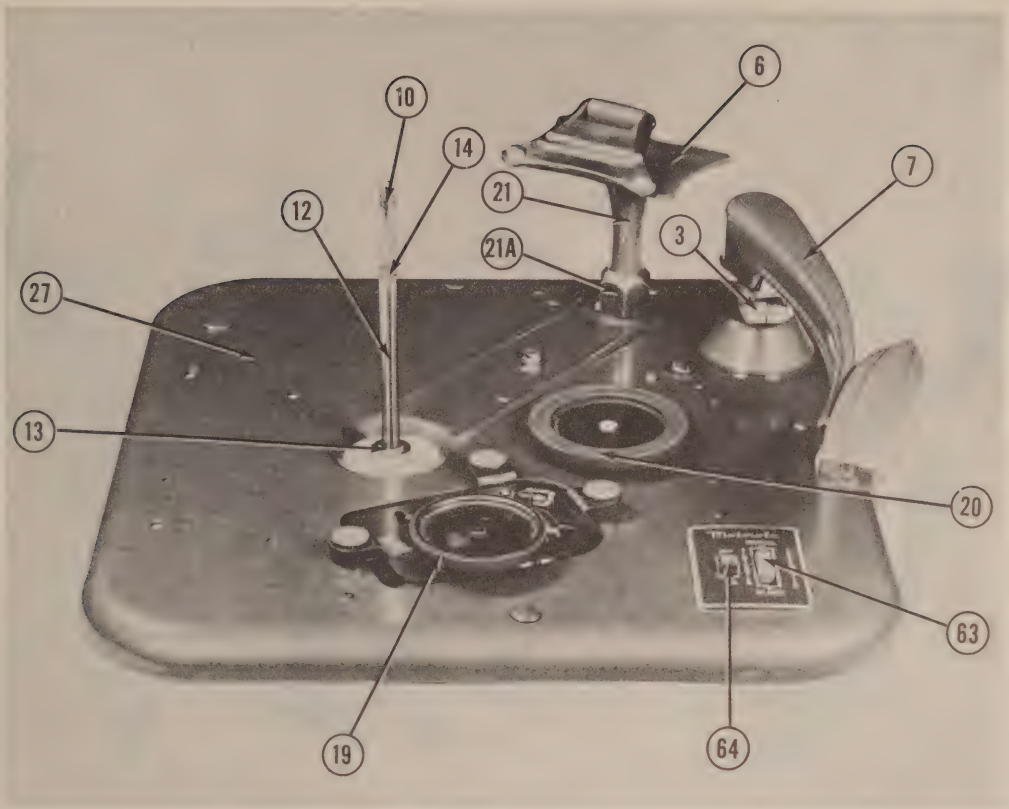
A roller on the end of the gear arm (53) rides in the groove on the under side of the cam, causing the eccentric (14) to rotate 180 degrees to pick up a record, then back to its normal position in line with the spindle to allow the record to drop on the turntable.

The stud on the selector arm (38), still riding in its groove on the main cam, moves the pickup arm back over the set down point. The pickup lift rod (3A) then rides back down into the inclined section of the main cam, lowering the pickup to the record.

As the main cam nears full 360° rotation, the trigger reset extrusion (44A) on the main cam pushes against the trigger reset stud on the small trip arm, setting up the trigger for the next cycle. At the same time spring tension is applied to the bell crank lever by the torsion spring so that when the main cam detent notch reaches the bell crank lever roller the roller falls into the notch, pulling the cycle drive pulley away from the turntable.

A shorting switch, actuated by the main cam, shorts the pickup during the change cycle, preventing unwanted noises from reaching the speaker.

Turning the record support platform automatically sets the mechanism so the set-down point will be correct for the size records being played. Selector arm (38) is moved by the stud on the selector plate (34), changing the angle between the selector arm and the trip arm.



TOP VIEW MINUS TURNTABLE

ADJUSTMENTS

RECORD SUPPORT PLATFORM

1. Turn the record support platform (6) to the 10-inch position, being sure it is turned so that the selector spring falls into the detent notch.
2. Place a standard 10-inch record on the spindle and cycle the changer to drop the record on the turntable, then stop the changer.
3. Lift the record so that it is in line with the eccentric (14) and check to see that it clears the lip of the record support platform equally at all points.
4. If the adjustment is incorrect, loosen the two Allen head screws under the record support platform and adjust the platform.
5. After adjusting the platform, run the changer through a complete cycle using a 10-inch record and check the set-down point. If the needle misses the record by one inch, the platform is 180 degrees out of line with the detent plate and should be turned one-half turn without moving the detent plate.

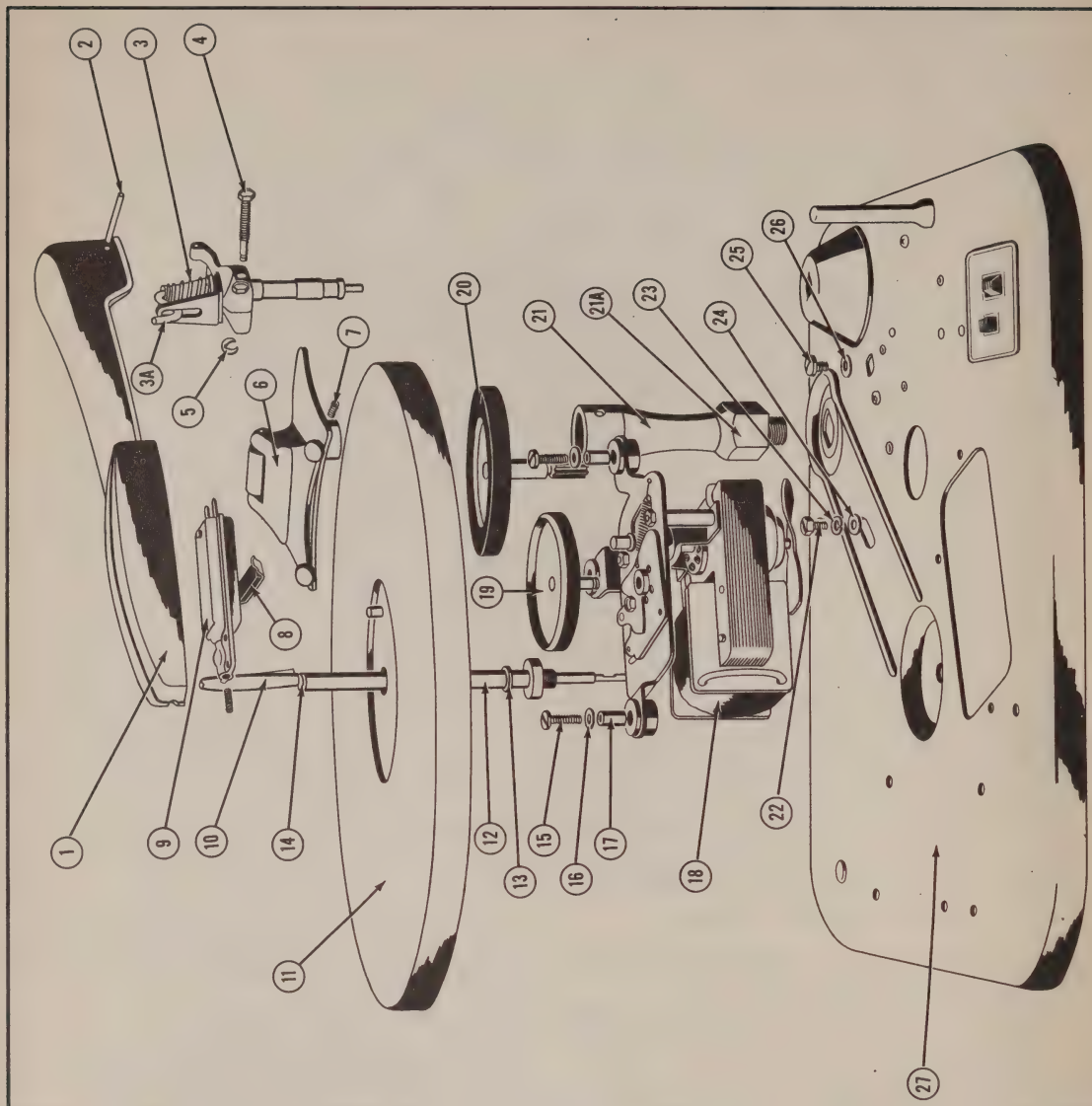
RECORD DROP MECHANISM

Cycle the changer once, by pulling the control button to "Reject." At the end of the cycle, stop the changer and check the position of the eccentric (14) with respect to the record post (12). It should line up perfectly. If not, adjust as follows:

1. Pull the reject button and revolve the turntable slowly by hand until the gear arm roller is resting on the raised section of the record release guide groove. This raised portion is very small, resembling "flash" on castings. It serves to constrict the groove at one point to insure closer alignment between the eccentric and the record post.
2. Loosen the slab head set screw in the spindle gear (56). This allows the eccentric to turn freely.
3. Turn the eccentric so that it aligns perfectly with the record post and retighten the set screw.

SET-DOWN POINT

1. Turn the record support platform to the 12-inch position.
2. Place a standard 12-inch record on the turntable.
3. Start the changer and allow it to go through its cycle.
4. Note where the needle contacts the record. This point should be approximately one-half way between the edge of the record and the first groove.
5. If the set-down point is incorrect, recycle the changer and stop it just as the pickup comes down and is about to touch the record.
6. Loosen the lockscrew (Part of 3) and turn the lateral adjustment screw (4) until the needle is centered properly between the edge of the record and the first groove.
7. Tighten the lockscrew. Care must be used in older models to prevent cracking the casting.
8. Check with a 10-inch record. Some compromise may be necessary to make the set-down point correct for both sizes.



POSITIVE TRIP

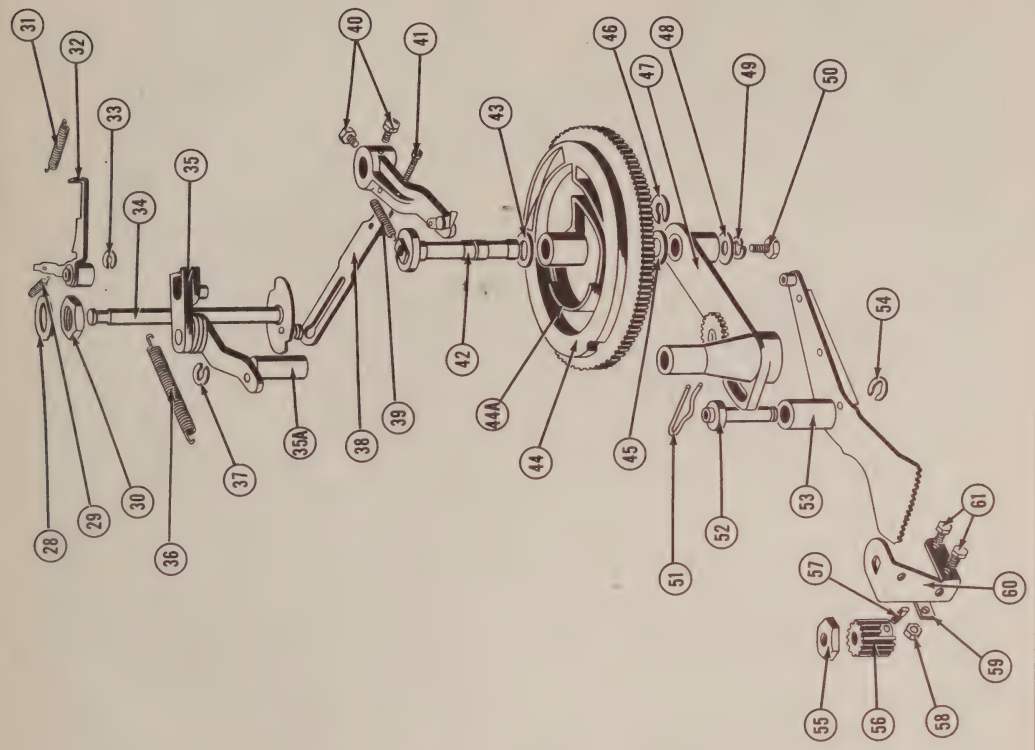
This adjustment must be made after the set-down point has been properly adjusted.

1. Draw a 3¾″ diameter circle on a piece of stiff paper. Cut a ¼″ hole in the center. Slip this over the record post on to the turntable.
2. Set the record support platform to 12 inch.
3. Turn on the changer and run through a complete cycle. This should leave the pickup free. Turn off the changer.
4. Move the pickup slowly toward the center. A click should be heard as the needle passes the 3¾″ circle.
5. If the click is heard before or after the needle passes the circle, the positive trip adjustment screw should be adjusted as follows:
6. With the pickup on its rest, reset the trigger by moving the control button to "manual" then back to "automatic."
7. Adjust the positive trip adjustment screw (41) clockwise if the trip is too close to the record post, counterclockwise if trip occurred before the 3¾″ circle was reached.
8. Check adjustment and repeat if necessary.

VERTICAL ADJUSTMENT OF PICKUP ARM

To check the vertical adjustment of the pickup arm:

1. Turn the record support platform to the 12-inch position and cycle the changer. When the cycle is complete, turn off the changer. The pickup should be resting by the side of the turntable. The needle should be exactly level with the top of the turntable.



2. Fully load the changer with records, ten 10-inch or eight 12-inch records. Start the changer and drop one record on the turntable. The pickup should come down on the record in normal playing position.
3. Push the button to "reject" momentarily. Watch the pickup to see that there is sufficient clearance between the top of the pickup arm and the bottom of the bottom record on the support post.
4. Drop the entire load on the turntable and check that there is clearance between the pickup and the top record. If adjustment is necessary, it may be made by bending the pickup lift rod at the flat portion.

ECCENTRIC STUD ADJUSTMENT

This adjustment must be made very carefully. Overadjustment will cause slow cycling and undue motor wear.

1. Cycle the changer and stop the motor when the pickup comes back within one inch of the turntable.
2. Loosen the eccentric stud (35A) completely.
3. Rotate the turntable by hand counterclockwise one quarter turn and back. Pickup should not move.
4. Slowly tighten the eccentric until the pickup begins to move with clockwise rotation but not with counterclockwise rotation. This is the critical point. Do not hold the screwdriver on the stud while checking.
5. Tighten the eccentric stud barely far enough to pick up the motion when the turntable is turned backward.
6. To check for too tight adjustment, time a complete cycle with the motor running. If the cycle requires more than seven seconds, the adjustment is too tight and steps 1 through 5 should be repeated.

TROUBLES

MECHANISM SLOW IN STARTING OR MOTOR HEATS UP

1. Check lubrication. Phono motor and turntable bearings use No. 10 motor oil. All other bearings and moving parts use No. 105 Lubri-plate.
2. Dirt in bearings. Clean with carbon tetrachloride and re-lubricate.
3. Be sure line voltage and frequency are correct.
4. Damaged motor.
5. Eccentric stud out of adjustment.
6. Grease on idler wheel or turntable rim. Clean with carbon tetrachloride.
7. Room temperature abnormally low.

SQUEAKS DURING PLAYING OF RECORDS

1. Apply wax to record post.

CHANGER NOISY IN CYCLE

1. Check lubrication.
2. Check for bent parts.
3. Check lubrication of center post eccentric shaft.

CHANGER WILL NOT CYCLE

1. Check adjustment of eccentric stud.
2. Weak pawl spring.
3. Pawl frozen on trip arm. Clean if necessary; if binding is due to any other cause, replace entire trip arm and selector lever assembly.
4. Weak bell crank arm spring. Tighten by bending spring.
5. Bell crank arm binding on shaft.
6. Drive arm or main cam wheel binding.

CHANGER CYCLES CONTINUALLY

1. Eccentric stud adjusted improperly.
2. Bell crank torsion spring too weak. Replace.
3. Worn parts in trigger mechanism. Replace worn parts.
4. Small trip arm may not be lifted far enough by the trigger reset extrusion. Expand casting at extrusion by dotting with center punch.
5. Manual lever wedged between base and small trip arm. Bend lever slightly away from the base.

PICKUP ARM TRIPS OUT OF OSCILLATING GROOVES

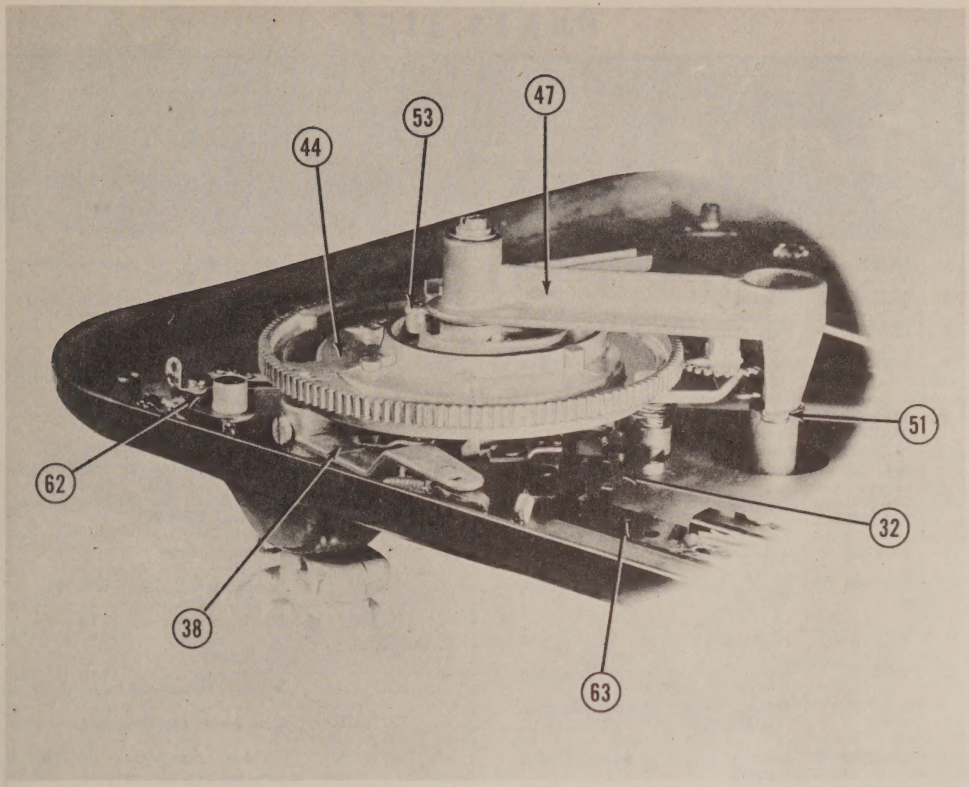
1. Record changer not level.
2. Ratchet arm bent too close to trip pawl.
3. Rough surface on catch surface of small trip arm.

PICKUP ARM

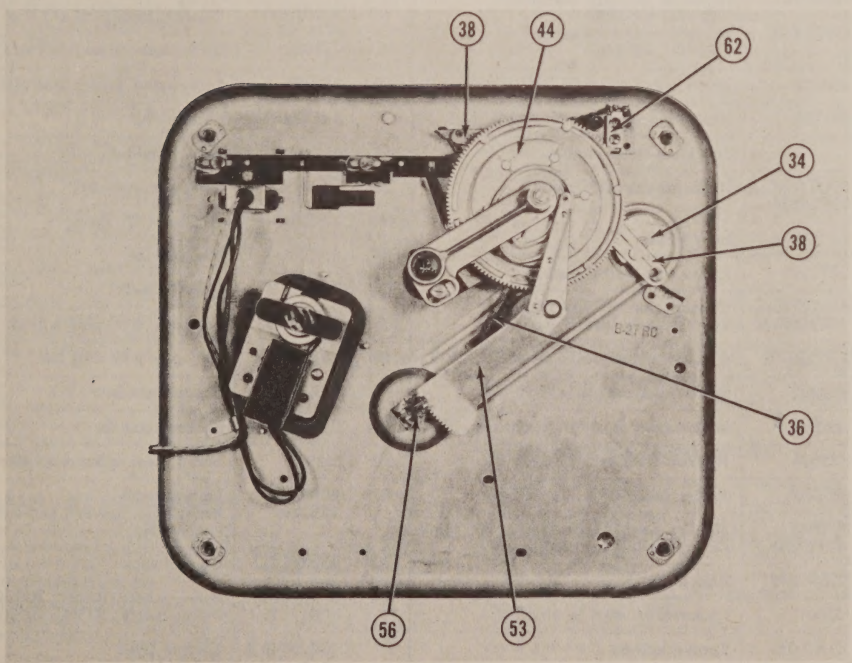
4. Pickup arm main shaft binding.
5. Insufficient clearance between trip arm and changer base.
6. Selector lever bent.
7. Selector lever binds on rivet in detent plate. Correct by spreading slot in selector lever.

RECORD WILL NOT DROP

1. The record release in the spindle assembly may not be protruding far enough. It should protrude as far as the eccentric when the eccentric is picking up a record.
2. Eccentric out of line with record post.
3. Set screw in spindle gear loose.



SIDE VIEW



BOTTOM VIEW

PARTS LIST

No.	Part No.	DESCRIPTION
1	45D71605-G	Pickup arm
2	47A71685	Pin, pickup arm: steel
3	1X72338 4S7569	Pickup shaft and cam assembly Washer—located in pickup cam assy.
3A	47A71633	Pickup lift rod
4	3A71612	Screw, adjustment (pickup arm lat. adj.)
5	4K24125	Washer "C"
6	1X76774	Plate and clamp assembly
7	3S9700	Setscrew, steel 6-32 x 3/16 Allen hd. cup point
8	42A75809-A 35A74664 35A74665 35K74908	Clip, cartridge retainer Pad, cartridge, large Pad, cartridge, small, use with Shure Pad, cartridge, small, use with Webster
9	59A71618 or 57A74887	Cartridge, crystal
10	*1B76766 1B71709	Spindle and release assy., B27RC & B28RC Spindle and release assy., B24RC & B25RC
11	59C71664	Turntable
12	*47B76762 47A71702	Record Post and bearing assembly, B27RC & B28RC Record post and bearing assembly, B24RC & B25RC
13	*43A76396-A 43X4554	Bearing, oilite: ring type, B27RC & B28RC Bearing, ball: .062 dia. (16), B24RC & B25RC
14	*1B76770 47A72662	Eccentric and tube assembly, B27RC & B28RC Eccentric and tube assembly, B24RC & B25RC
15	3S7342	Screw, steel 6-32 x 5/8 BHMS cad. pl.
16	4S1765	Washer, steel 1/2 x .147 x 1/64 thick
17		Spacer, motor mounting
18	59C71678 or 59C75524	Motor, phono: 117V, 60C
19		Idler wheel
20	1X71795	Pulley and shaft assembly
21	*46B76775-G 46B71653-C	Support, post, B27RC, B28RC Support, post, B24RC, B25RC
21A	*2A76397-B	Nut, adjustment, use with 46B76775-G
22	3S2291	Screw, steel 8-32 x 5/16 HHMS
23	4S7671	Lockwasher, steel No. 8 split cad. pl.
24	4S7623	Washer, steel 3/8 x 11/64 x .033
25	3S2287	Screw, steel 12-24 x 1/4 BHMS
26	4S7643 46A27563	Washer, steel 11/16 x 15/64 x .021 thick Pickup resting post, tenite
27	27D71601	Base plate
28	4S8441	Lockwasher, steel 1/2 external
29	41A76681	Spring, tension
30	2S8397	Nut, steel 1/2-28 x 5/8 hex.
31	41A27775	Spring, tension
32	1X75569 45A74582	Ratchet arm and bushing assembly Trip link
33	4K24125	Washer "C" spring
34	*1X76778 1X71788 41A71635	Selector shaft and plate assembly, B27RC & B28RC Selector shaft and plate assembly, B24RC & B25RC Spring for detent plate
35	1B71785	Bell crank assembly
36	41A72337	Spring, drive arm tension
37	4A21941	Washer "C" spring
38	*1X76779 1X71789	Trip arm and selector lever assembly, B27RC & B28RC Trip arm and selector lever assembly, B24RC & B25RC
39	41A76681	Spring, tension
40	3S7152	Screw, steel 6-32 x 1/4 HHMS
41	3S2697	Screw, steel No. 2 x 5/8 PKZ
42	47A21298	Shaft, cam
43	4A21491	Washer, brass 9/16 x .315 x .020 thick
44	1B71679	Cam wheel and bearing assembly
45	4A21491	Washer, brass 9/16 x .315 x .020 thick
46	4A21941	Washer, "C" spring
47	1X71794	Drive arm assembly
48	4S7597	Washer, steel 7/16 x .171 x .033
49	4S7671	Lockwasher, steel No. 8 split
50	3S7374	Screw, steel 8-32 x 5/16 HHMS
51	42A76484-A	Spring, clip
52	46A71631	Stud, shoulder
53	1X76781	Gear arm assembly
54	4A21941	Washer, "C" spring
55	2A72311	Nut, special
56	44B71634	Gear, spindle
57	3S7109	Setscrew, steel 6-32 x 5/16
58	2S7019	Nut, steel 4-40 x 1/4 hex.
59	42A71690	Clamp, spindle
60	7A71688	Bracket, spindle
61	3S2286	Screw, steel: lockscrew 4-40 x 3/16 HHMS
62	40A72571 1X75267	Muting switch Receptacle, bracket, and muting switch assembly
63	45B27543	Control slide
64	40A27846 40A27545	Power switch, B24RC, B27RC Power switch, B25RC, B28RC
	45A27549-D	Manual lever

*Parts not interchangeable.

The PHOTOFACT Servicer

DECEMBER 24th, 1946 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 2, No. 12

ROBERT M. ELLIS, *Editor*

HOW BIG IS A PHOTOFACT FOLDER SET?

In the original brochure announcing PHOTOFACT Folders we said:

"WHAT ABOUT COSTS?"

"Every PHOTOFACT Folio contains at least 30 PHOTOFACT Folders and many of them will contain as many as 50 Folders, wholly depending on the complicated nature of the receivers examined. This means you get complete service data on any new set in your shop for never more than five cents, and often for as little as three cents, the price of a postage stamp!"

At the time this announcement was issued we had only estimated costs. No one before had ever set up a business that involved the analysis of radio receivers from actual samples, and which required the procurement of at least one of every model radio receiver when it was placed on the market. No one knew, for instance, how many receivers could be covered by four-page Folders, how many would take six pages, and how many would take eight, or more. No one knew what percentage of schematics would have to be traced entirely from the wiring, for instance; and this is a costly and laborious process. We could point to dozens of other items where in our actual operating costs were only a guess. We did have the definite intention of making each PHOTOFACT Set as large as economically practical, and to pass on every possible saving in added value to our patrons.

Here is what Volume 1 of PHOTOFACT Folders (Sets 1 to 10 inclusive) actually brought to you—

Total number of new 1946 models not including record changers covered in PHOTOFACT Sets 1 through 10.... 667
Chassis Designations covered in PHOTOFACT Sets 1 through 10 128
Folders produced in PHOTOFACT Sets 1 through 10..... 363
Total pages in PHOTOFACT Sets 1 through 10.....1600

We told you that you would get a minimum of thirty Folders per Set—our six months average is 36.3; and we brought you an average content of 160 pages per Set.

We are now on known ground; our production department (that's what a laboratory must be in a business like this) has developed proven routines and assured methods to handle any kind of set. Now that we have known operating and production costs, we can give you definite figures. Each PHOTOFACT Folder Set will contain a total of 160 pages. That's less than a penny per page for practical, proved technical radio data! The actual number of Folders per set will naturally vary, depending on the number of pages in each Folder. This in turn will depend on the complexity of the Sets involved. Our standardized format always provides the maximum amount of information per page.

So now you have the answer to the question—how big is a PHOTOFACT Folder Set—the answer . . . approximately 160 pages. But most servicemen would answer by saying—"How big?—PHOTOFACT Folders are the biggest bargain in radio servicing. They pay for themselves over and over again."

★ ★

STAGE GAIN MEASUREMENTS

A number of patrons have written us, asking for clarification on the stage-gain foot-note which appears near the bottom of the schematic on each PHOTOFACT Folder. Subricribers ask why we list "approximate" rather than absolute values.

In considering this question, it is necessary to keep in mind the fundamental reason for the listing of any and all data in PHOTOFACT Folders—to provide the information required for making repairs with the greatest speed and with the least effort. Experience has shown that stage gain measurements are of genuine value in this regard, providing the measurements are such that they can be duplicated within reasonable limits by service engineers with low or medium cost stage gain measuring equipment.

Undoubtedly it is possible to obtain stage gain measurements of greater accuracy than practical with the service type equipment we use. Furthermore, we have facilities and technicians capable of handling precision research laboratory type apparatus. But we do not intend to adopt precision laboratory methods of measurement, because we know our patrons could not use the same methods, and could not duplicate our results.

Rapid servicing demands the use of a test-prod-type measuring instrument, and the attachment of such an instrument unavoidably introduces regeneration into the circuit, so that the reading obtained may not necessarily be representative of the true operative gain of the stage. Usually the gain we measure is higher. From the standpoint of completing a repair this effect is of no importance.

Suppose we have a set like this on our repair bench—voltages check o.k.—resistances check o.k.—no defective condensers—tubes reasonably good—alignment o.k. with one or more trimmers suspiciously broad. The set plays, but the "sock" is gone; it takes all the volume for locals. This is a typical case where stage gain measuring equipment proves its value. Armed with the stage gain measurements from a PHOTOFACT Folder, a quick comparison will speedily locate "slacker" stages and will show up defective coils and r.f., i.f., or audio couplers that should be replaced.

Before making any stage gain measurements in our laboratory the set is carefully aligned for maximum sensitivity. The a.v.c. system in made inoperative so that gain will be constant regardless of signal input (up to the point of overload), in accordance with the conditions printed in the individual PHOTOFACT Folder. Using either one of two standard makes of probe type analyzers gain is measured with the probe inserted in the set at an angle which introduces the minimum amount of regeneration. This is usually at right angles to the grid lead of the stage involved. Shifting the probe from this position causes the gain of the stage to change rapidly. For instance, we have seen instances where an i.f. stage gain would increase from 150X to over 800X by just shifting the probe position.

All the above can be summarized into three points:

1. Our stage gain figures provide valuable help in diagnosing trouble in weak receivers, and greatly speed servicing in receivers having certain defects.
2. The stage gain figures are relative, and since they are made with service type test equipment, the values are representative of what will be measured by the service engineer on his own equipment.
3. Because of regeneration and other effects introduced by the use of probe type instrument, PHOTOFACT stage-gain figures are valueless for making performance comparisons between normally operative receivers whether of the same, or different makes.

★ ★

NEW ADDED FEATURES!

It isn't often that you have to replace the gang condenser on a receiver. When this is necessary, however, technical specifications on the condenser can save a whale of a lot of experimentation in selecting a suitable replacement. In addition, knowledge of the gang condenser constants are of value in making coil replacements.

Accordingly, effective with PHOTOFACT Folder Set 12, Volume 2, we will show the maximum and minimum capacities of the gang condenser on each set listed.

Here is another forward step in our program of making servicing easier and more profitable.

NEW FOLDER FOR INSTITUTE MEMBERS

Institute Members who are interested in obtaining authentic information on cabinet repairs should write for their free copy of

"HOW TO MAKE RADIO CABINET REPAIRS"

By DALE F. GRIFFIN, *Head of Building Trade Dept.*
Arsenal Technical Schools, Indianapolis

written in a simple, easy-to-understand manner, and containing sales propaganda for no product, this new folder is a valuable addition to the library of any service shop. There is money in cabinet repairs. The best of know-how is yours for the asking.

★ ★

FIELD EXPERIENCES

This is your column. It is your opportunity for passing practical service experiences to others for the mutual benefit of all. For every "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set from his authorized distributor; and the author is given full credit as the source of information.

We endeavor to select those "Field Experiences" which will provide maximum benefit and interest to our patrons. Since it is impossible to verify the accuracy of all contributions, we cannot be responsible as to either the accuracy of diagnosis made of the receiver trouble, or as to the results which will be obtained by following the suggested service or repair routine. Contributions are welcome, but please do not send us routine or generally known data. Please do not mind if we edit your contribution for clarity or brevity. All contributions become the property of Howard W. Sams & Company, Inc.

★

Mr. L. Gerald Sprague, of Radio Sales and Service, 141 E. Washington Avenue, Bath, New York, earns a PHOTOFACT Folder Set for the following which may also be applicable to other makes and models than the one listed.

FADA 1000 SERIES RECEIVERS

"We have noticed quite a large number of Fada Model 1000 AR etc. to be intermittent and to act as though a tube was noisy in the r.f. stage. This can be cured by tightening the screw at the back of the variable condensers which grounds the rotor plates."

★

Here is a service note from our own field engineering staff.

AIR KING, MODEL 4625

In record players like the Air King Model 4625, the 12SQ7 or 14B6 may become microphonic after a few hundred hours of use. This is caused by the diode plates becoming loose from vibration. The tube will check o.k. in a meter. The cure: connect the diode plates to the cathode or to the ground.

★

We agree with Mr. H. Parker of Parker Radio Repair, 609 Ridge Avenue (rear), Pittsburgh 12, Pa., that the following contribution can be a time saver. Here is what he tells us.

THREADING DIAL CORDS

"I enclose a simple 'trick' for the disgusting job of threading the trailing or second end of the linen dial cable, which must enter the same hole or eyelet on dial drum.

"This hole or eyelet usually seems too small to allow both ends to enter. Dip both ends of cable in hot or melted wax, or drop some candle on the ends, work the ends between the fingers, tapering the ends of the cord to a point. When the wax becomes hard, you have more rigid, tapered points on the cable, which usually will enter the hole very easily.

"The reason that the eyelet usually seems too small is because we in the field work backward from the factory 'know how.' The factory usually pushes the doubled cord outward from within the drum, but we can't always follow this procedure on the bench, not knowing the exact cut lengths, how to string, etc."

★

Mr. M. E. Dominick, 2111 South Pulaski Road, Chicago 23, Illinois, will receive a certificate for one PHOTOFACT Folder Set for the following service suggestion.

AIRLINE (MONTGOMERY-WARD) MODELS 54BR-1501A, 54BR-1502A

"The set was motorboating very badly on the low end of the dial. So I tried to re-align the set, but this did not do any good.

"The remedy that I found was to place by-pass condenser (12) .05 mfd. as near the chassis as possible. Then take the green lead from the pin No. 8 of the 12SA7 tube, and move it away from the near wires. Also take the same lead from the trimmer A6 and move it away from the condenser (12) and away from all B plus leads, and from the chassis.

"This should remedy all motorboating and all oscillation."

EDITORS NOTE: The .05 mfd. condenser referred to is Capacitor Item No. 12 of PHOTOFACT Folder 462-26.

★

Mr. John G. Rohr, 5863 North Lawrence Streeet, Philadelphia 20, Pa., will receive a certificate for the following:

CHRYSLER-PHILCO AUTO RADIO MODEL C-4608

(MOPAR MODEL 802, used in 1946 Chrysler-built cars.)

"If this set is intermittently extremely noisy, replace the 15,000 ohm plate resistor on the 7A7 r.f. tube. This is R402 on the Philco schematic, and its resistance will vary, although it looks perfect."

★ ★

JUST TO REMIND YOU . . .

"How Much Is Your Labor Worth?" Parts 1, 2, and 3 by Don Shaw, are available on request to Institute Members. If you didn't get you copies, just drop us a postal card.

★

"How Can You Figure Your Profits?" Part I of a monograph "Accounting Procedures for Radio Service Engineers," is available to Institute Members on request.

★

If you didn't get Set No. 1 and a copy of "How to Use It" tell us—we will gladly send you a copy free. It tells you how to use and how to file PHOTOFACT Folders and how to become a member and keep your membership active in the Howard W. Sams Institute.

★

There's no charge for exchanging imperfectly printed folders. If you have one send it back and we will gladly exchange it.

★

Be sure to write and tell us of your field experiences. You'll be given full credit for them and you'll be helping others. We are particularly anxious to have repair suggestions on automatic record changers, record players, and pick-ups.

★

A registration card, packed with every other set of Folders, is for two purposes—to enable you to register if you have not already done so, and after that, to accompany letters requesting service information, to enable us to speed the information to you without having to check our membership records. Be sure you are registered so that you will receive valuable mailings.

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Volume 2—Set No. 13 . . . . . **February 10**
Volume 2—Set No. 14 . . . . . **February 25**
Volume 2—Set No. 15 . . . . . **March 10**
Volume 2—Set No. 16 . . . . . **March 25**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*